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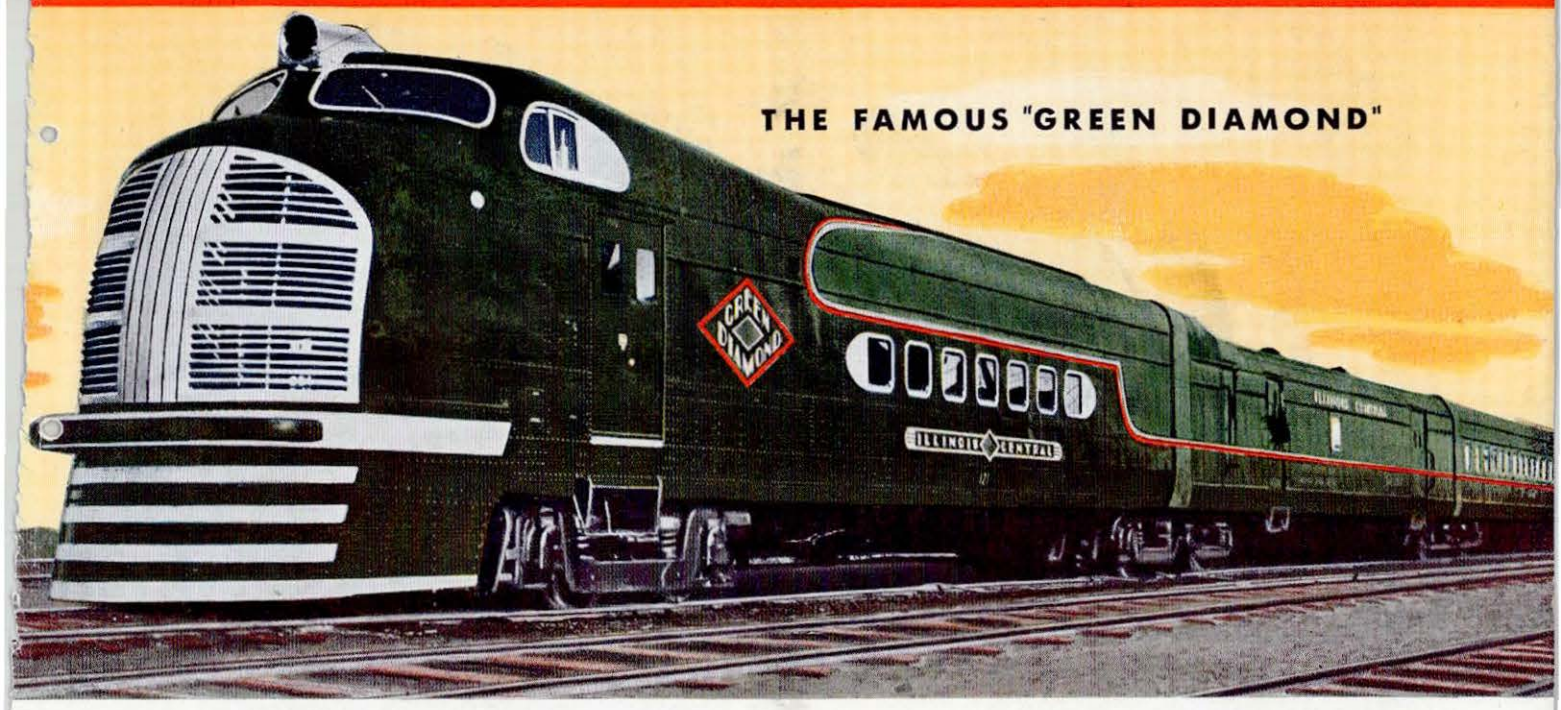
DECEMBER 28, 1946

Editorial Contents, page 21

Railway Age

Founded in 1856



HONORABLY DISCHARGED

with a brilliant service record

THE famous "Green Diamond" of the Illinois Central — one of the earliest lightweight articulated trains — has earned an honorable discharge through sheer success.

Back in May 1936 its first run was headline news, covered by press services and special newspaper correspondents. It was one of the first General Motors Diesel powered passenger trains that brought entirely new concepts of smooth, clean, fast-schedule railroading.

This train, headed up by its original General Motors Diesel has hauled an estimated million passengers, has covered over 2 million miles and has carried a capacity load almost every daily round trip — between Chicago and St. Louis — for 10 years and four months.

Now the business it has built has grown far beyond the capacity of this fixed consist five-car train. So this famous "Green Diamond"* takes its place in railroad's bright history. In the writing of its own glorious chapter, this early General Motors Diesel suggests the even greater dependability and brilliant performance of today's improved GM locomotive.

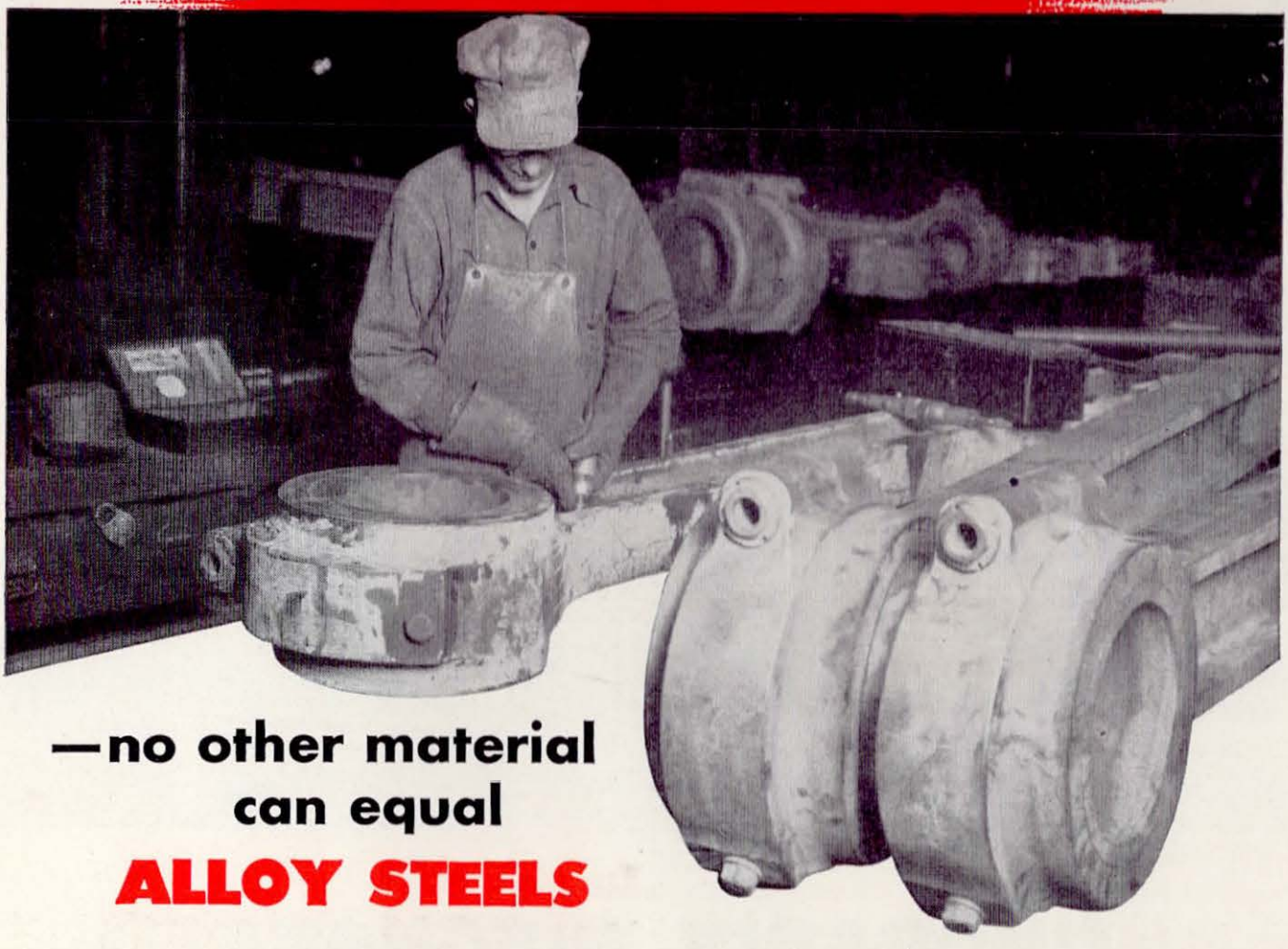
GENERAL MOTORS LOCOMOTIVES

**The "Green Diamond" has been replaced by a larger modern train powered by GM Diesel locomotives.*

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS • LA GRANGE, ILL.

FOR STAMINA



—no other material can equal ALLOY STEELS

For the tough railroading jobs where extra stamina is needed to resist severe strains, shock, reversal of stresses, wear, corrosion or abnormal temperatures, no other material can equal alloy steels.

These top-quality steels provide long, dependable life at low cost per year of service in spite of punishing operating conditions. That's one important reason why many roads use Republic Alloy Steels for main rods like those above, and for engine bolts, staybolts, pins, bearings and reciprocating parts.

Another reason for the use of these steels is their high strength-to-weight ratio. This permits the use with safety of lighter equipment and smaller sections, and provides the means for reducing power-consuming deadweight.

Add up all the advantages of alloy steels and you must agree that no other material offers so much for the money. Republic—world's leader in the production of alloy steels—is ready NOW to assist you in their most efficient application.

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

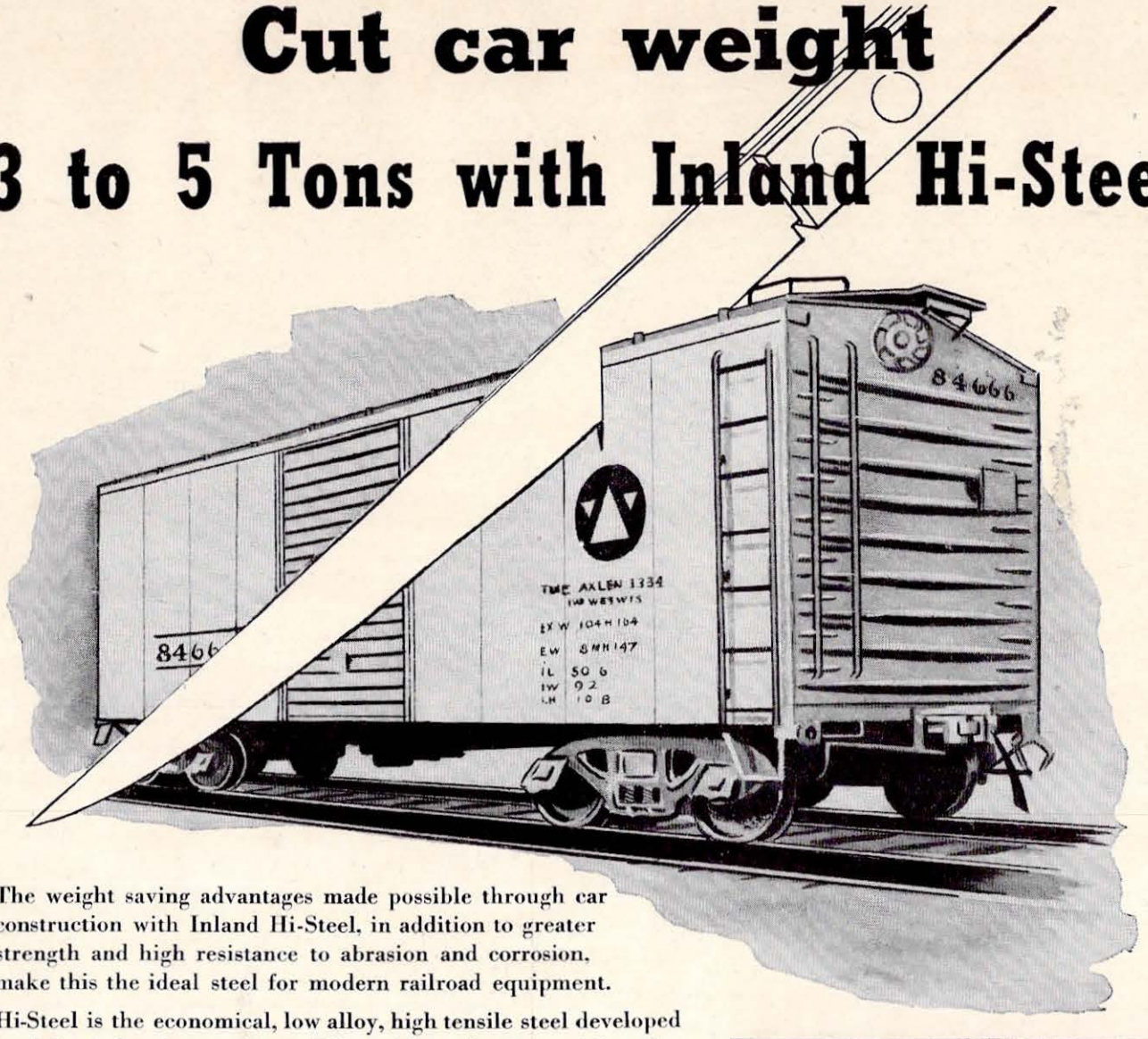
Republic **ALLOY STEELS**

Other Republic Products include Stainless, High Strength and Carbon Steels—Sheets—Plates—Pipe—Bolts, Nuts and Rivets—Boiler Tubes

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 50 cents each. Vol. 121, No. 26.

Cut car weight

3 to 5 Tons with Inland Hi-Steel



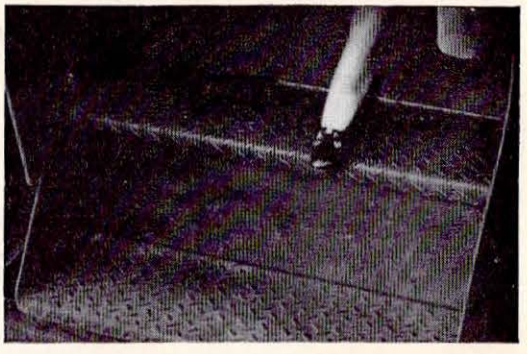
The weight saving advantages made possible through car construction with Inland Hi-Steel, in addition to greater strength and high resistance to abrasion and corrosion, make this the ideal steel for modern railroad equipment.

Hi-Steel is the economical, low alloy, high tensile steel developed by Inland that has made possible weight reductions of 3 to 5 tons in standard box or hopper cars and yet maintain a full margin of strength and safety.

In comparison with ordinary structural grade carbon steel it has a yield nearly twice as great with a fatigue strength approximately 1/3 greater. A simple heat treatment will give even greater strength to meet particular applications.

Tests prove Hi-Steel will resist corrosion four to six times longer than ordinary steels . . . has a high resistance to abrasion.

Nearly all forms are rolled in Inland Hi-Steel, and our engineering staff is ready to advise you in adapting this superior steel to your individual requirements. Write for a copy of the Inland Hi-Steel Booklet.



Inland 4-Way Floor Plate adds structural strength—improves safety when installed for passenger car platforms and steps.

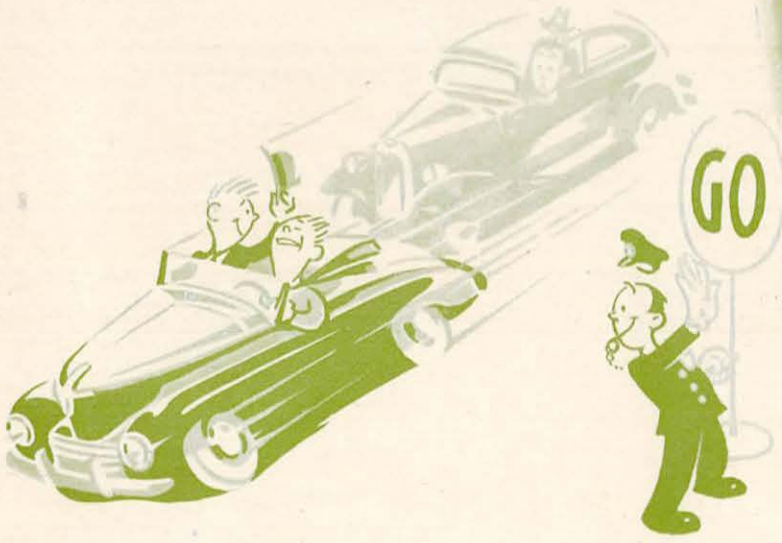
INLAND STEEL

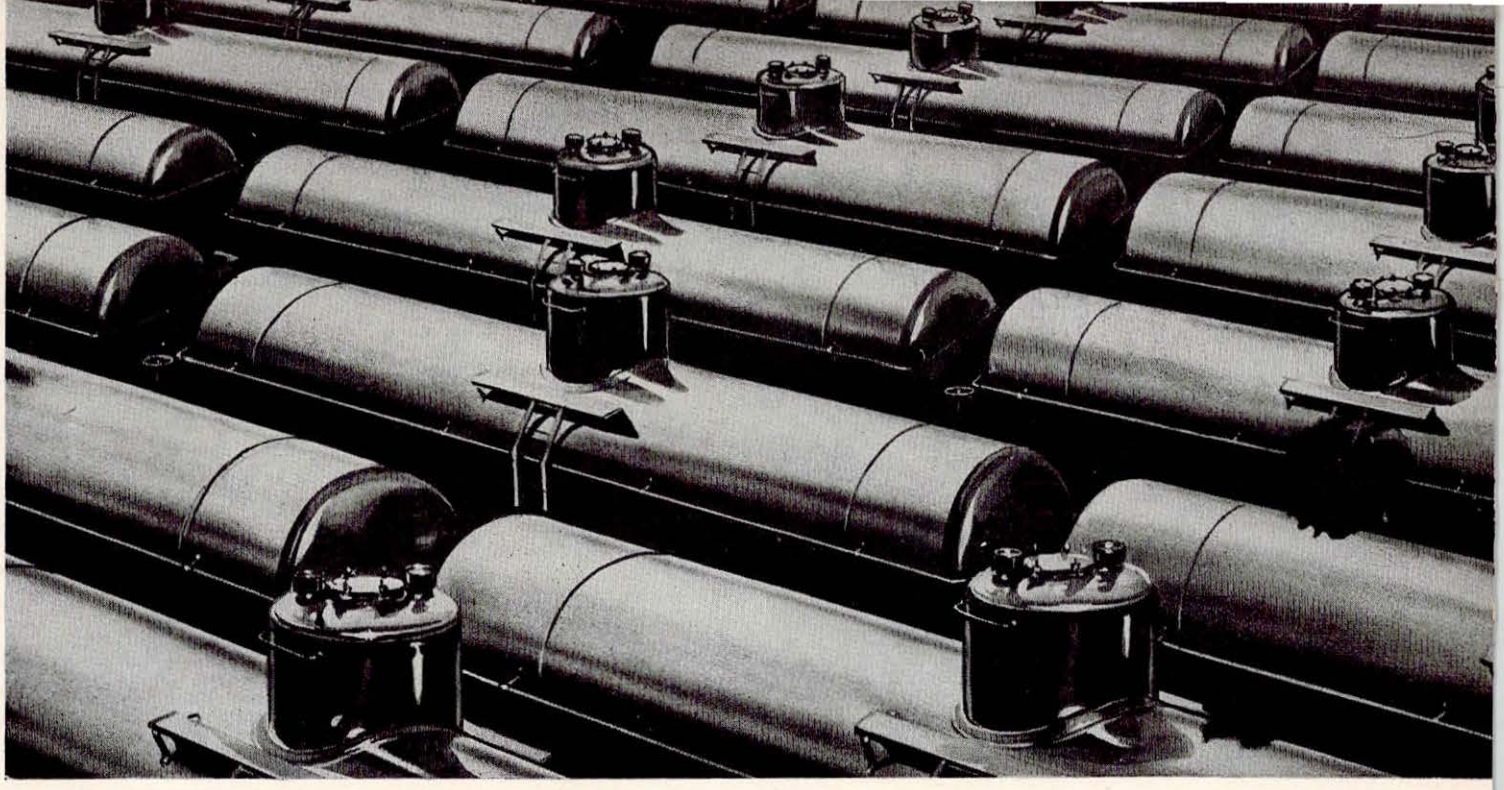
INLAND STEEL COMPANY, 38 South Dearborn Street, Chicago 3, Illinois
Sales Offices: Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul

More scrap means more steel — return yours promptly

Other Products Include: PLATES • SHEETS • STRIP • TIN PLATE • PILING • REINFORCEMENT BARS • RAILS • TRACK ACCESSORIES

"fill 'er up"





means TWO MILLION TANK CARS OF REFINED PETROLEUM EVERY YEAR

It takes a whale of a lot of organization to be able to answer "okay"— to Mr. Motorist. Not only fleets of tank cars but sure, fast, scheduled train movements too. To withstand the steady grind and grueling hauls A.C.F. developed the all-welded tank car—finest on the rails today. The tank car future holds still greater promise.

American Car and Foundry Co.

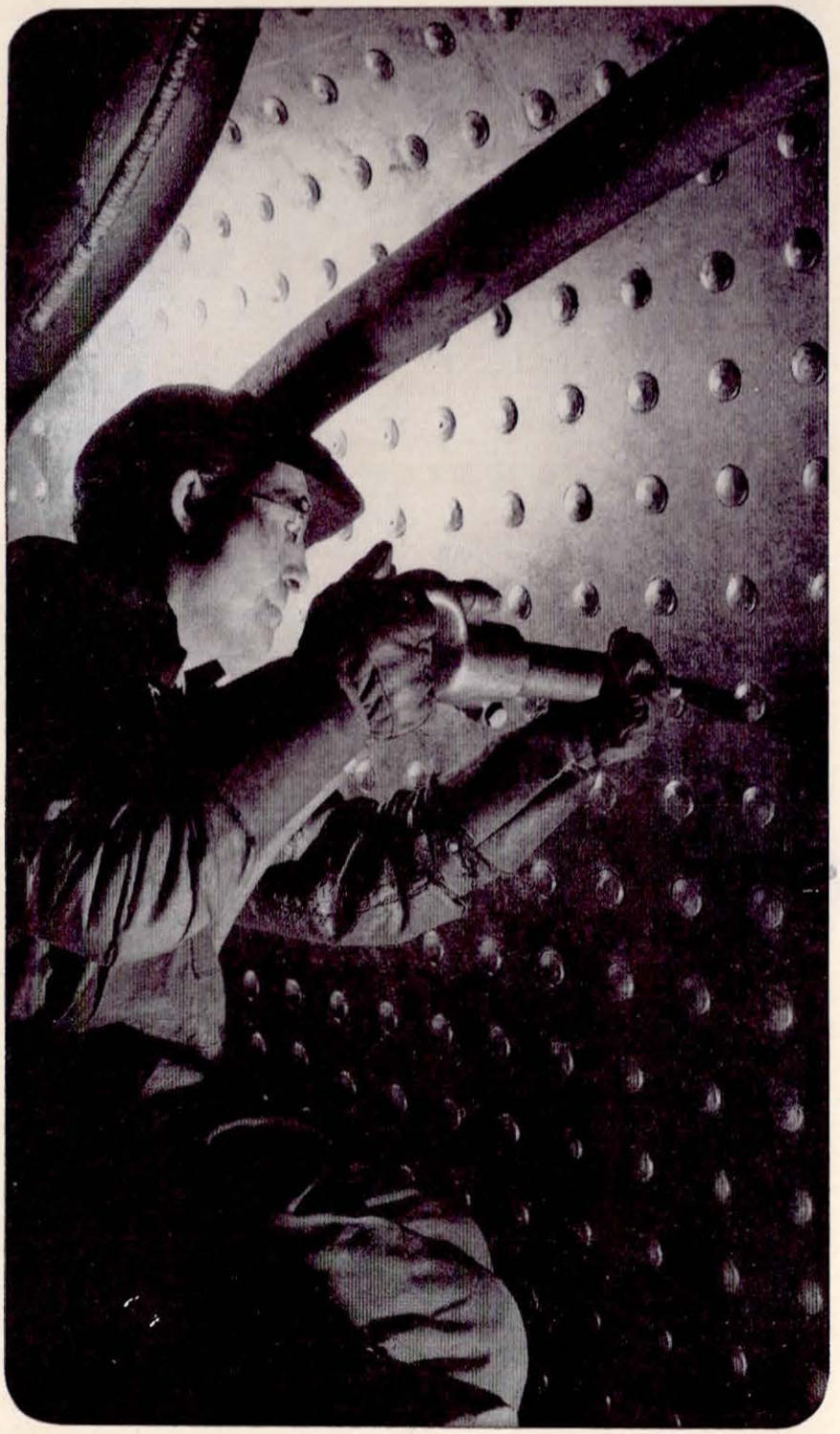
A.C.F. CAR BUILDERS TO AMERICA'S RAILROADS

NEW YORK · CHICAGO · ST. LOUIS · CLEVELAND · WASHINGTON · PHILADELPHIA · PITTSBURGH · SAN FRANCISCO

Your hammer will prove

MAYARI STAYBOLT STEEL'S

heading qualities



Try a piece of Mayari Staybolt Steel with an air hammer and notice how readily you can produce a sound, clean head. You will find Mayari has ductility and heading qualities not usually found in high-strength alloy steels.

Tests show this superior staybolt material has an elongation of 32 per cent and a reduction of area of 62 per cent—minimum tensile strengths of either 50,000 or 55,000 psi—and consistently high resistance to fatigue. All important properties are maintained through metallurgical control and rigid laboratory testing.

As far as initial cost is concerned, Mayari Staybolt Steel is priced considerably lower than staybolt materials heretofore in general use.

Total these advantages and you will see why leading railroads are turning to this stronger yet more economical steel for their staybolt needs. If you have not seen Mayari steel at work, give it a try in your own motive power.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast
Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation

Notes on STEEL CASTINGS

THE *Dependability*
YOU NEED
IN HIGH PRESSURE WORK

IF pressure castings are among your problems, you'll do well to avail yourself of PSF's rich experience in this exacting field. The castings for Hydraulic Presses, illustrated above, conform rigidly to the customer's "specs" in every detail. These weigh about 25,000 pounds—others run up to twice that weight and more—and we're equipped and accustomed to carry such work along to a 100% complete machining and assembly job. • Whatever your job may be that involves steel castings, PSF has the equipment and facilities to serve you *best*—we'll welcome your inquiries.

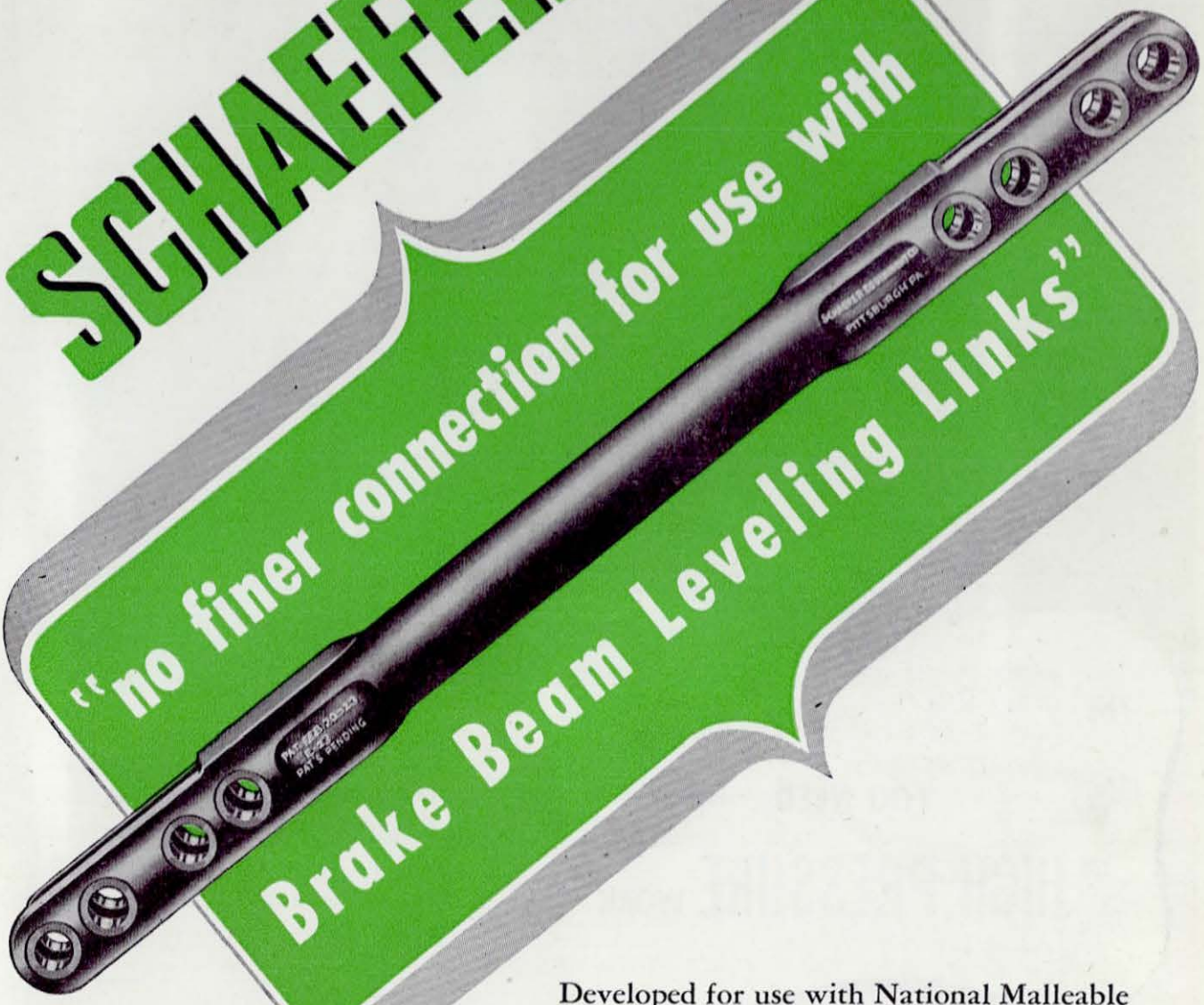
WAD 9885.

48 YEARS OF STEEL CASTING KNOWLEDGE

Pittsburgh
STEEL FOUNDRY CORPORATION
GLASSPORT, PA. *Plants:* Glassport, Pa. and McKeesport, Pa.
Sales Offices: New York • Chicago • Philadelphia • Washington

SCHAEFER

"no finer connection for use with Brake Beam Leveling Links"

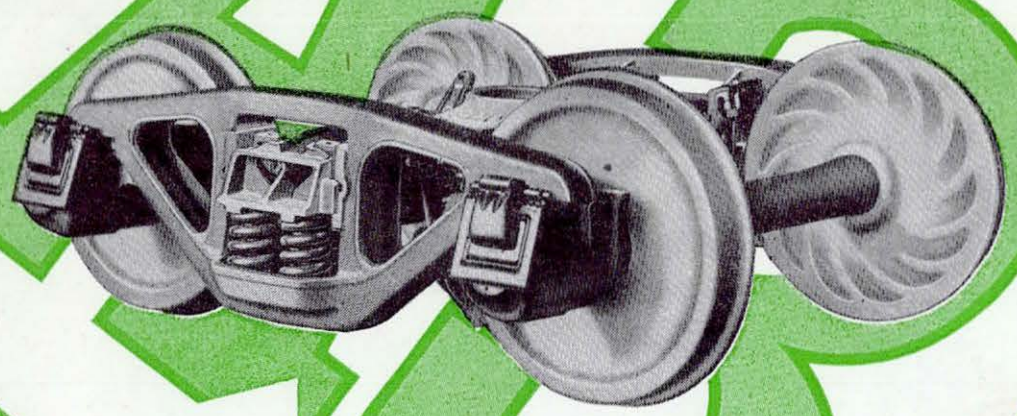


Developed for use with National Malleable & Steel Casting Company's brake beam leveling links, either under or through the bolster, they are longer and stiffer with overbuilt jaw structure. The link holes are accurately spaced and reamed. Specify Schaefer.

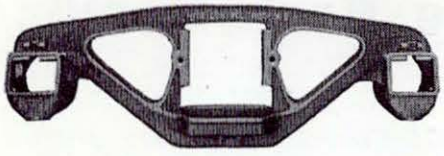
Schaefer

SCHAEFER EQUIPMENT COMPANY • • • KOPPERS BLDG. PITTSBURGH, PA.

SMOOTHER All Ways



SIDE FRAMES



AND BOLSTERS

for Ride-Control
TRUCK (A-3)

ARE MADE BY

FOR **ALL** FREIGHT CARS
FOR **ALL** LOADS
FOR **ALL** SPEEDS

For this and many other trucks, The Ohio Steel Foundry Company's side frames and bolsters meet all A.A.R. strength requirements.

THE OHIO STEEL FOUNDRY COMPANY

LIMA, OHIO

PLANTS IN LIMA AND SPRINGFIELD, OHIO

NORTHERN PACIFIC
YELLOWSTONE PARK LINE

1125 Car Sets On "MAIN STREET of the Northwest"

Northern Pacific bought their *first* Ride-Control Trucks late in 1943 . . . 375 sets for 50-ton box cars.

An additional 500 sets went under more 50-ton box cars in 1945.

. . . and, in July, 1946, they *again* re-ordered these smoother-riding trucks—this time for 250 40-ton refrigerators.

More than *two-thirds* of all American railroads using Ride-Control Trucks already have re-ordered—one as many as thirteen times. In less than three years, over 60 railroads and private car owners have bought more than 44,000 car sets for *every type* of service from box-express to hoppers.

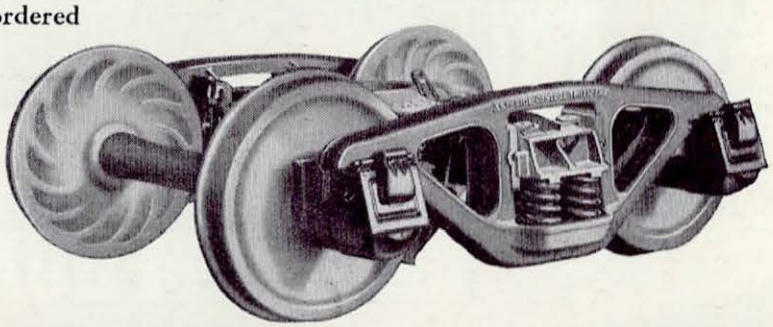
There could be no finer testimonial to the Ride-Control principle, and to the *all-round* utility of Ride-Control Trucks. Long spring travel and constant friction control protect lading, rolling stock, and roadbed—at all loads, *all speeds.*

The modern Ride-Control Truck is a sound investment in transportation economy.

A·S·F *Ride-Control* TRUCK

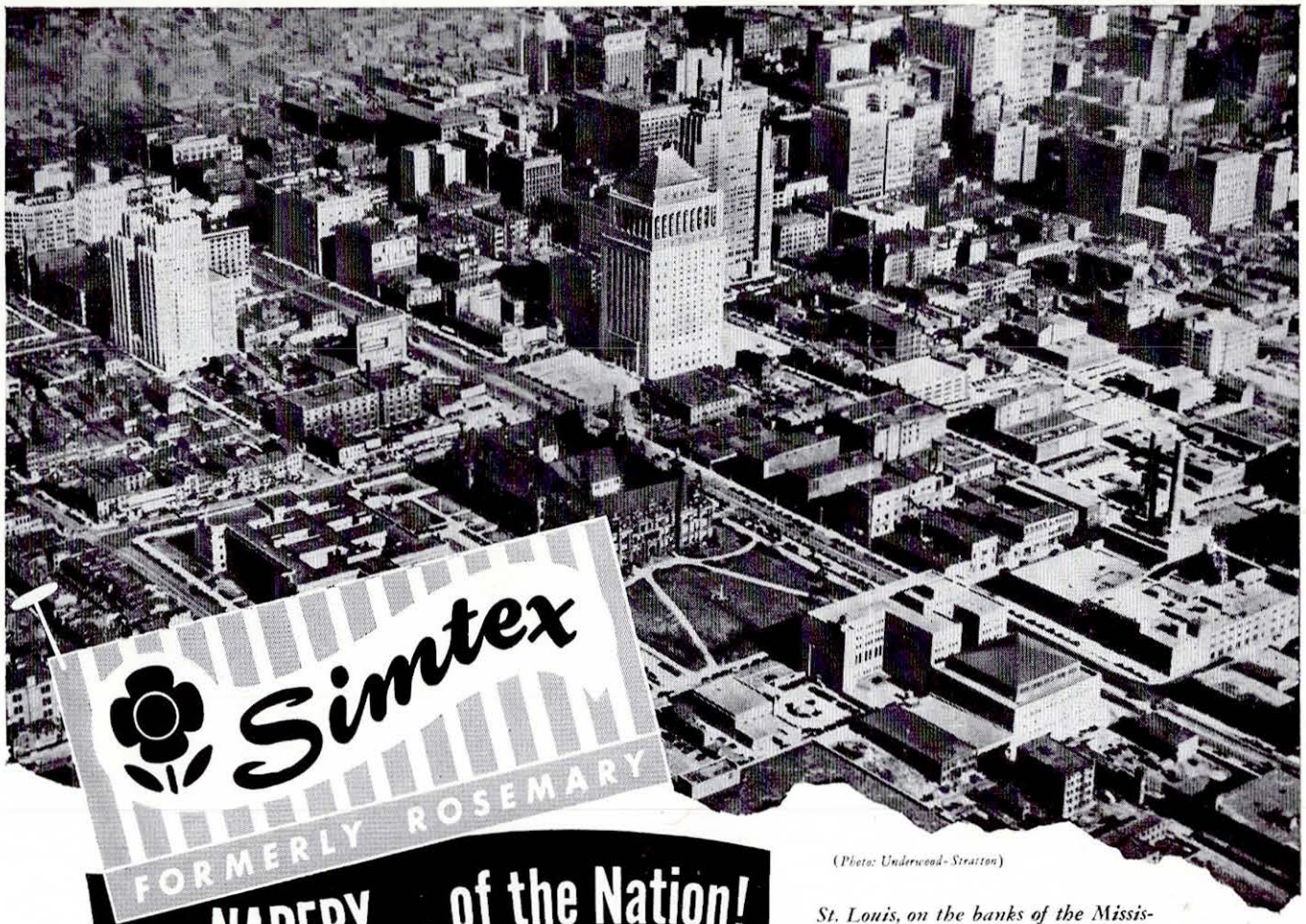
NO SPRING PLATES · NO SPRING PLANKS

LONG SPRING TRAVEL · CONSTANT FRICTION CONTROL



AMERICAN STEEL FOUNDRIES

MINT-MARK OF ⬡ FINE CAST STEEL



Simtex
FORMERLY ROSEMARY
NAPERY... of the Nation!

(Photo: Underwood-Stratton)

St. Louis, on the banks of the Mississippi, is the 7th city of the nation.

ST. LOUIS KNOWS QUALITY . . . Individually crested or name-woven Simtex cloths are special favorites in the dining rooms of St. Louis—a city renowned among traveling men for its fine hostelries. But, whether crested or smartly patterned, Simtex tablecloths, napkins and tray covers are "odds-on" choice of the country's leading hotels, restaurants, railroads, airlines, clubs and hospitals. "Balanced" construction, the permanent, deep-seated lustre of the famed "Basco" finish, remarkable launderability, and other quality features make Simtex the . . .

"NAPERY OF THE NATION!"

Partial list of users of Simtex-Basco napery in St. Louis:

HOTELS

*Branscome
*Chase
Congress
*Coronado
DeSoto
*Forest Park
*Jefferson
Kings-Way
*Lennox
Mark Twain
*Mayfair
Melbourne
*Park Plaza
*Statler

HOSPITALS

De Paul
Jewish
Missouri Pacific
Pressman
Sanatorium
St. John's
St. Luke's

RAILROADS & AIRLINES

*Missouri Pacific
*St. Louis & San Francisco R. R.
*T. W. A.
*Wabash Railway Co.

CLUBS

Missouri Athletic
University Club

* *Indicates users of crested napery.*

Simtex napery is distributed exclusively through leading Wholesalers and Linen Supply Houses.

Next to Good Food, People Prefer CLOTH-COVERED TABLES

Cloths · Napkins & Damasks

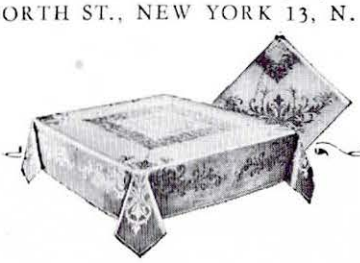
MADE RIGHT IN AMERICA

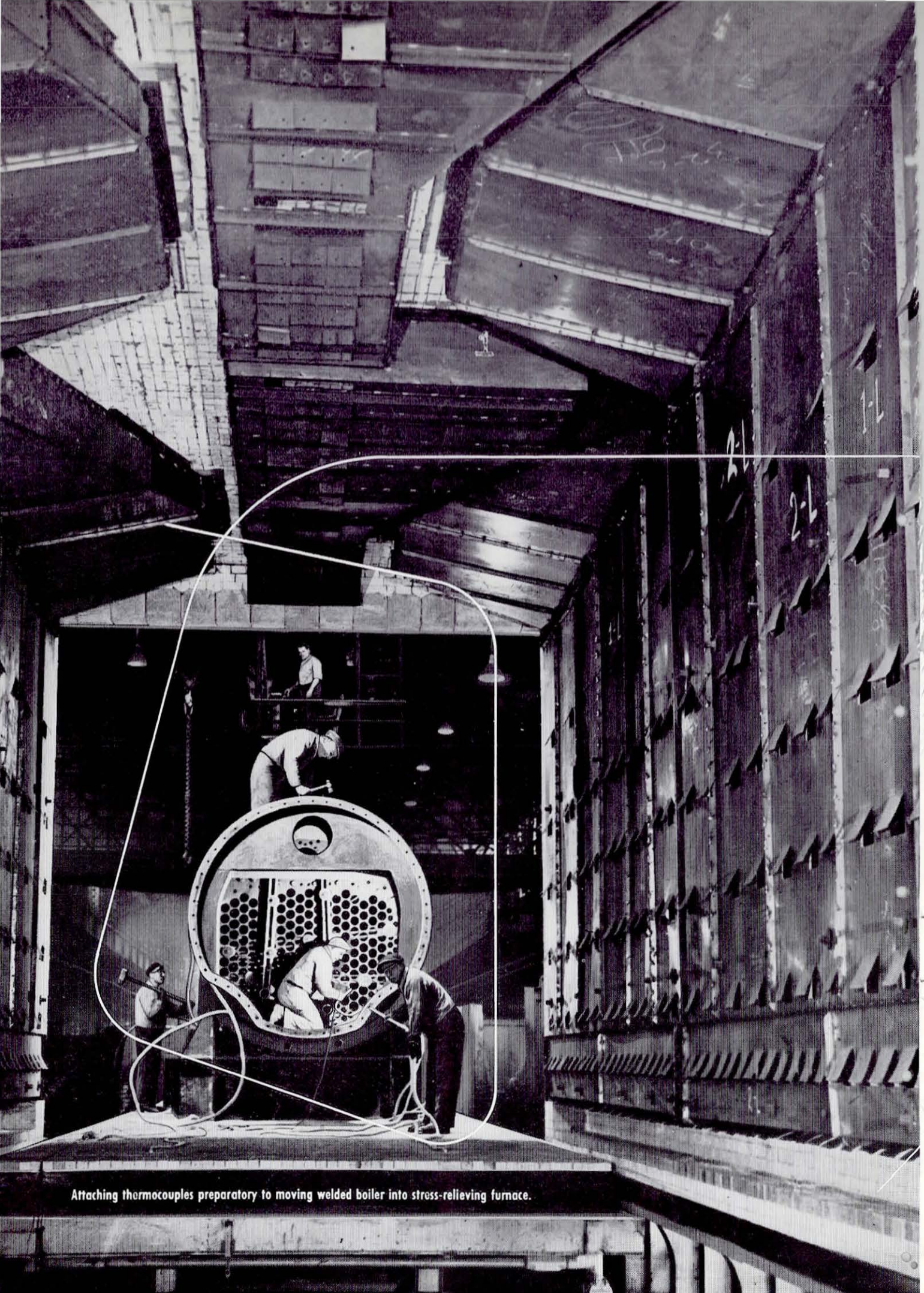
SIMTEX MILLS

(formerly Rosemary Sales)

Division of Simmons Company

40 WORTH ST., NEW YORK 13, N. Y.

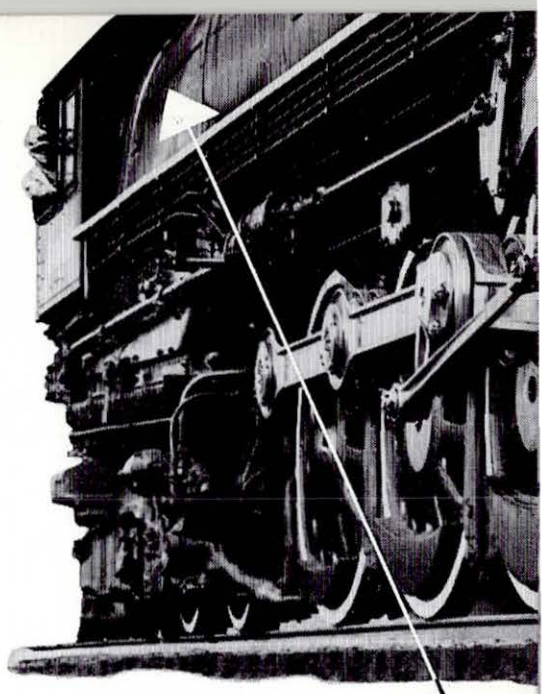




Attaching thermocouples preparatory to moving welded boiler into stress-relieving furnace.

Facts About Steam Locomotive Parts

All-Welded Boilers

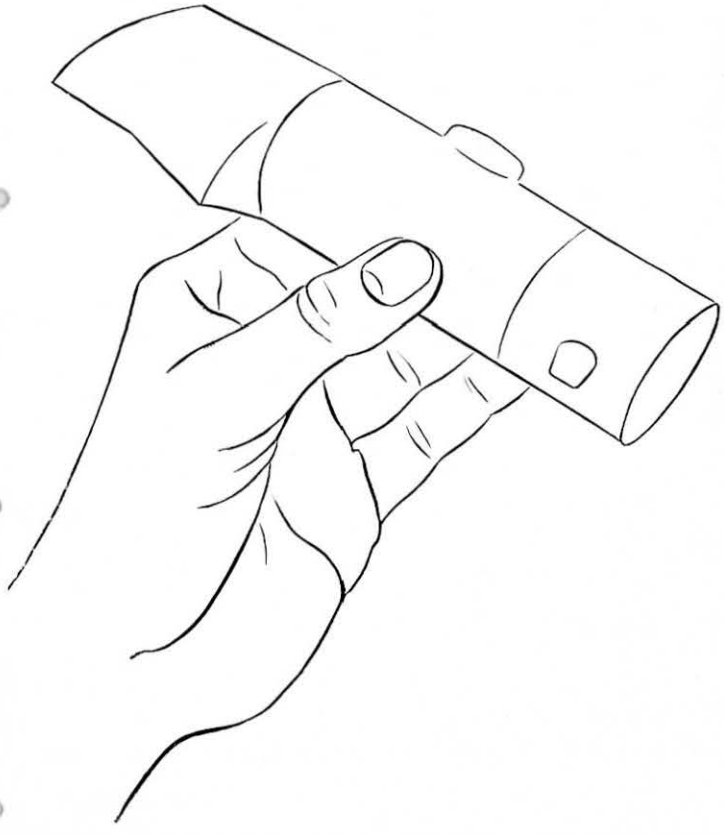


What happens here may make a huge difference in service and safety here!

Ninth Advertisement of an Important Series

ALCO is the only locomotive builder equipped with a stress-relieving furnace especially designed—or even suitable—for all-welded boilers. The great size of this furnace—80′ x 12′ x 12′—is apparent in the accompanying picture.

Automatic-control-type recording pyrometers, operating from 14 thermocouples attached directly to various parts of the boiler, govern heating and cooling at all stages of the stress-relieving process.



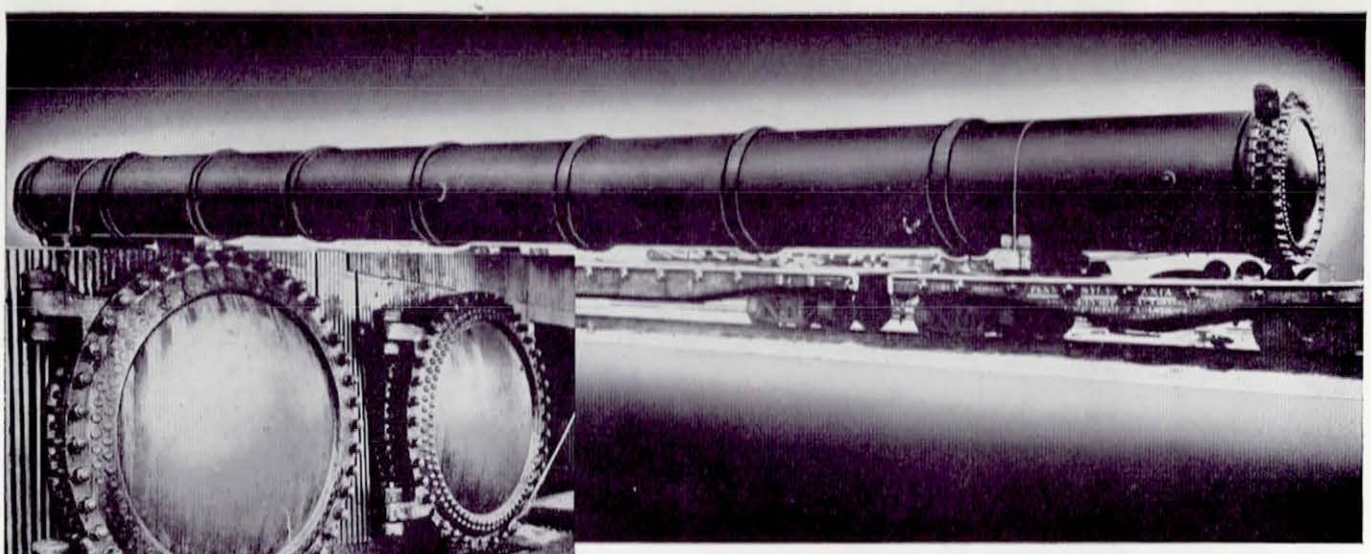
The high cost of this spectacular and useful equipment can be economically assumed by ALCO because, as a major locomotive builder, ALCO is in a position to keep busy even a furnace as specialized and outsize as this one. Volume production in ALCO's case makes the large investment economical.

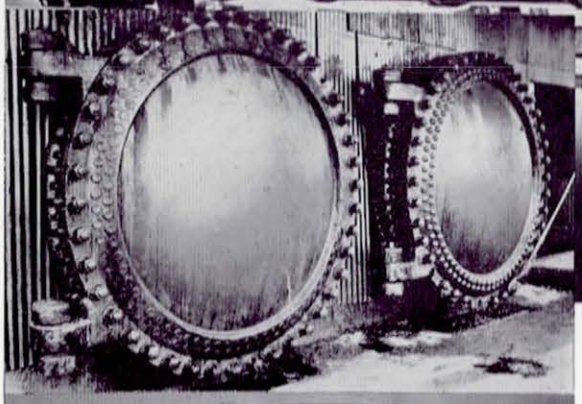
The benefits this furnace provides in quality and safety in ALCO locomotive parts are obvious. This is another example of why genuine ALCO replacement parts give you the greatest possible value per dollar in safety and service. American Locomotive Company, 30 Church Street, New York 8, N. Y.

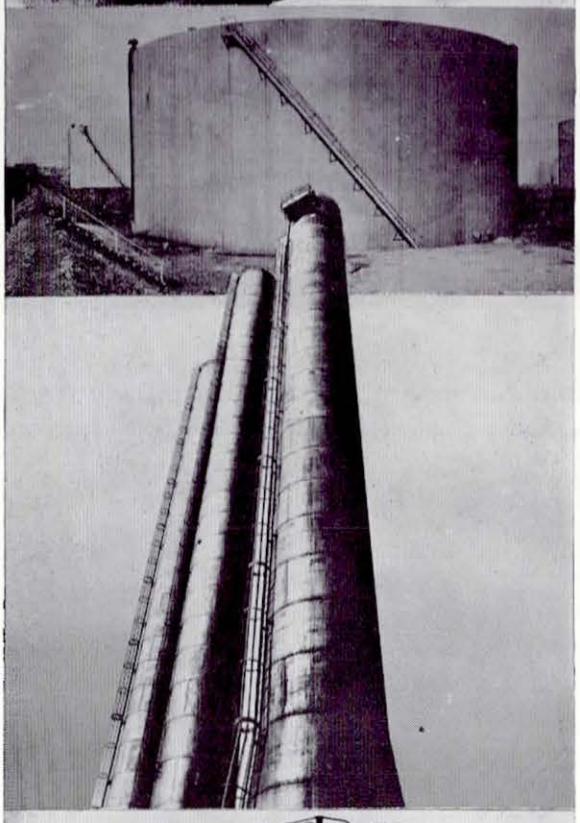
American Locomotive

Alco

THE MARK OF MODERN ENGINEERING







"Working for the Railroads"

CREOSOTING cylinders, storage tanks – water, oil, creosote – self-supporting steel stacks, bins and the familiar GATX tank cars are among the numerous items built by General American for the railways of America and foreign countries.

Complete equipment for controlled heat treating and stress relieving of the most modern and approved design permits the welding of all weldable steels. Some of this railroad equipment has been built to customers' specifications, some designed by us as well as fabricated and erected.

One of our engineers will be glad to submit recommendations and quotation on your requirements for plate fabricated equipment.

General American

TRANSPORTATION CORPORATION

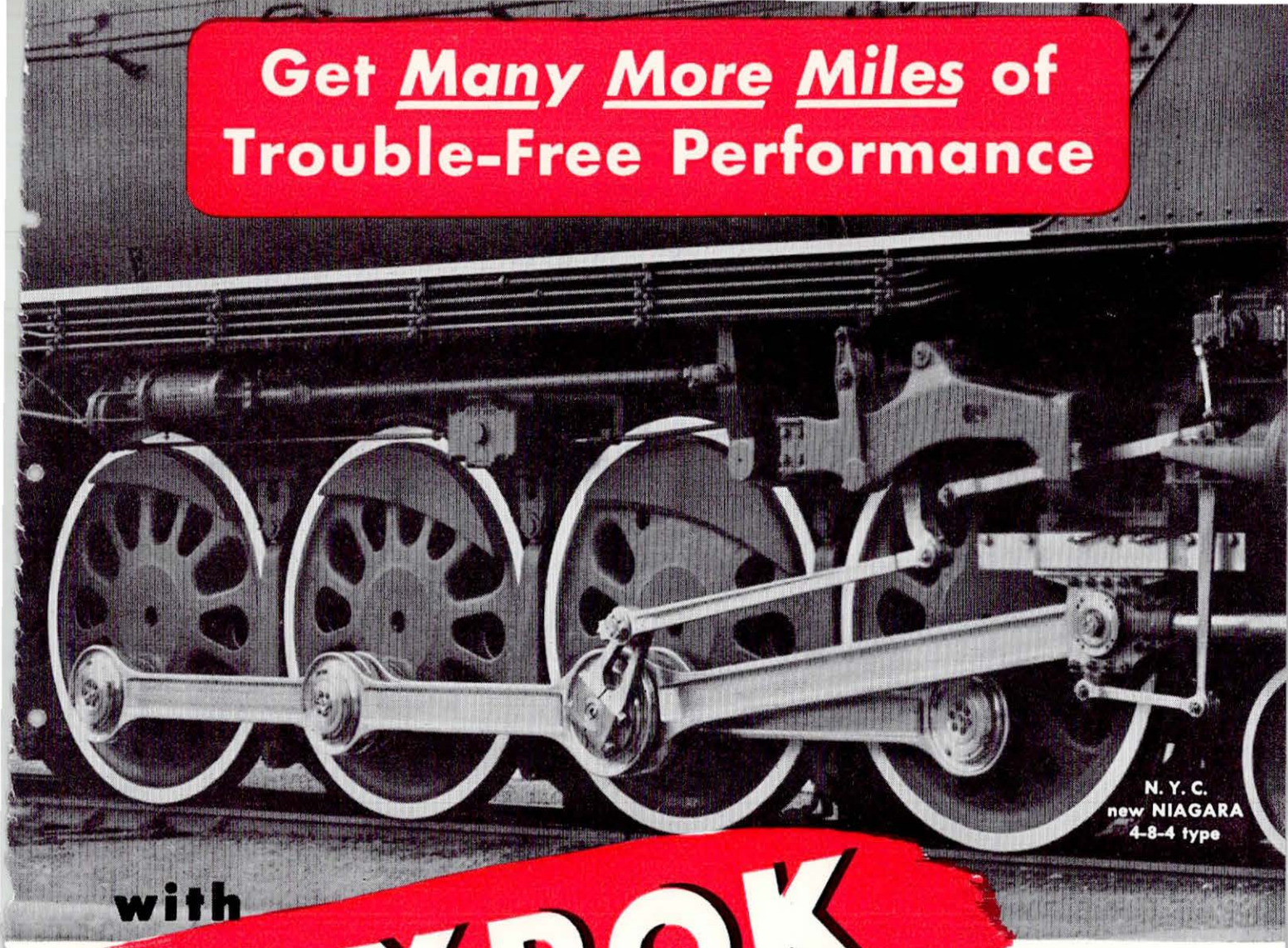
process equipment • steel and alloy plate fabrication

SALES OFFICE: 10 East 49th St.
Dept. 930, New York 17, New York
WORKS: Sharon, Pa., East Chicago, Ind.

GATX GENERAL AMERICAN

OFFICES: Chicago, Louisville, Cleveland, Sharon, Orlando, St. Louis, Salt Lake City. Pittsburgh, Washington, D. C.

Get *Many More Miles* of Trouble-Free Performance



with BOXPOK DRIVING WHEELS

BECAUSE of the better and more economical distribution of metal, BOXPOK Driving Wheel Centers are stronger, both laterally and in the rim.

The box section rim construction, with supporting walls on both sides, has much greater strength and more uniform tire support, preventing out-of-round wheels and flat spots, increasing tire mileage and reducing wheel maintenance. The design also has greater strength to resist high piston thrusts, lateral forces and rail impacts.

For Less Wear and Tear on Track and Locomotive, Specify BOXPOK!

GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

Company Community Country

YOU HELP ALL 3 WITH THE P. S. P.

● Participants in the Payroll Savings Plan benefit directly in terms of cash—because U. S. Savings Bonds at maturity pay $4 for every $3 invested.

Your company, your community, and your country benefit indirectly in terms of security—because: (1) Employees with a solid stake in the future are likely to be stable, productive workers. (2) The Bond-buying habit of local citizen-employees means a reserve of future purchasing power—a safeguard for the stability of your community. (3) Every Bond bought temporarily absorbs surplus funds and helps check inflationary tendencies.

You're doing everybody a favor—including yourself—by supporting the Payroll Savings Plan.

ARE YOU USING THESE BOOKLETS?

If not, or if you wish additional copies, just ask your State Director of the Treasury Department Savings Bonds Division.

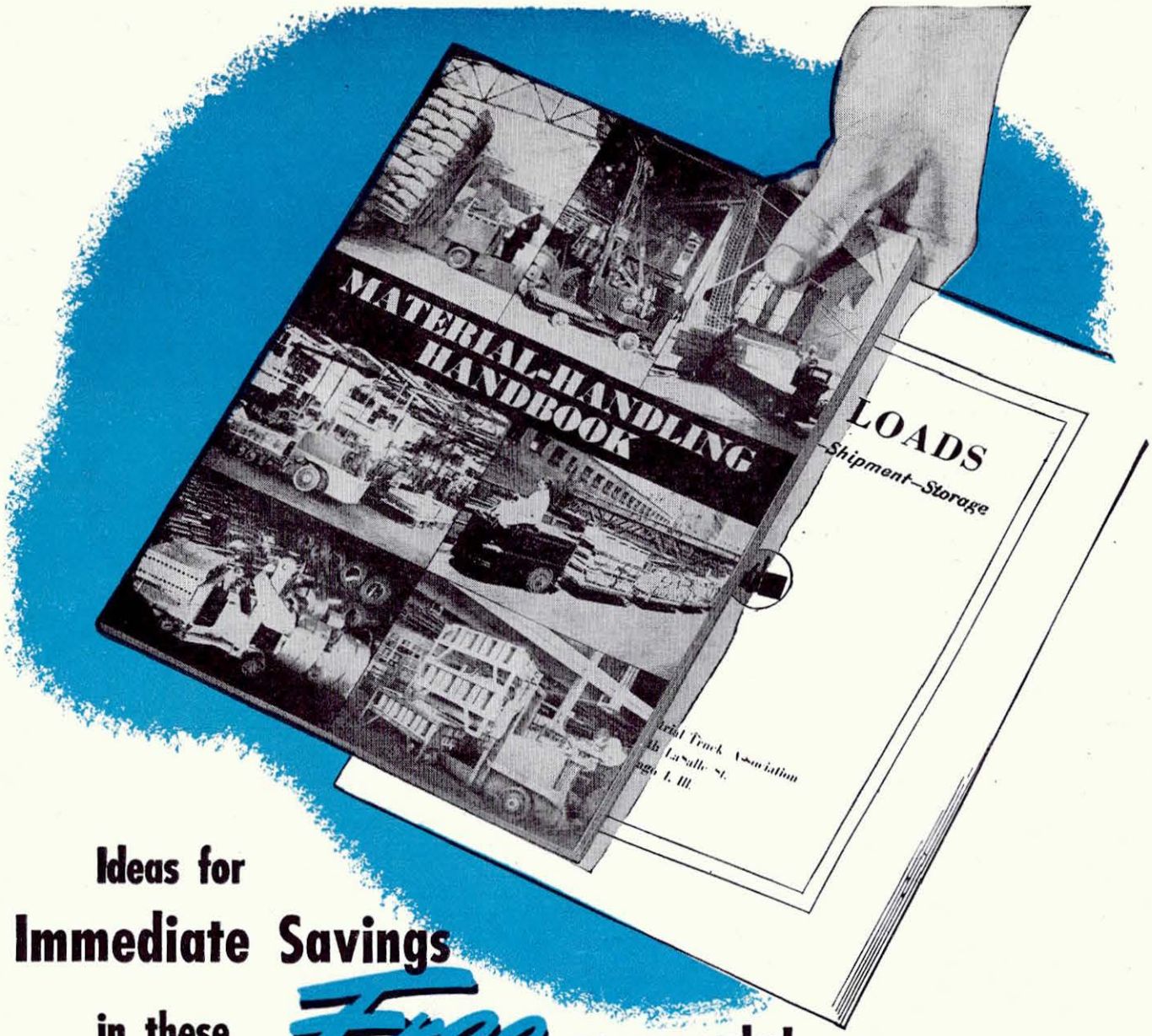
The Peacetime Payroll Savings Plan—A booklet, published for key executives by the Treasury Department, containing helpful suggestions on the conduct of your payroll savings plan for U. S. Savings Bonds.

This Time It's For *You*—A booklet for employees . . . explaining graphically how the payroll savings plan works . . . goals to save for, and how to reach them with Savings Bonds.

The Treasury Department acknowledges with appreciation the publication of this message by

RAILWAY AGE

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council



Ideas for Immediate Savings in these Free manuals!

... how and why battery-powered industrial trucks move materials at lowest cost

MATERIAL HANDLING HANDBOOK

A 56-page guide to the analysis and solution of material-handling problems. Fully illustrated, in four sections: (1) The Place of Material Handling in Plant and Warehouse; (2) Material Handling Principles; (3) Planning an Electric Industrial Truck Installation; and (4) Practical Truck Application. Tested how-to-do-it suggestions for raising man-hour and machine-hour productivity—for reducing floor space.

UNIT LOADS

Their Handling, Shipment, Storage

This 16-page illustrated booklet describes the unit-load method of handling materials in internal plant transportation as well as in carloading, warehousing, and other handling operations incidental to movement over common carriers. Includes numerous case studies, discusses pallet construction and the preparation of unit loads for shipment.

Even if your present system *is* mechanized, you will find *new* suggestions for substantial cost reductions. Your letter or the coupon will bring these booklets—free.

THE ELECTRIC INDUSTRIAL TRUCK ASSOCIATION

The Electric Industrial Truck Association
208A South La Salle Street
Chicago 4, Illinois

Please send— ☐ MATERIAL HANDLING HANDBOOK
☐ UNIT LOADS

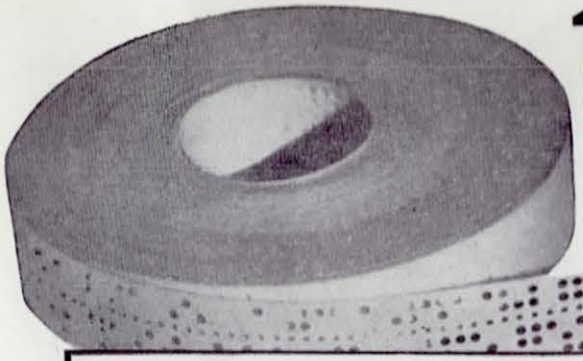
Name.....Title.....

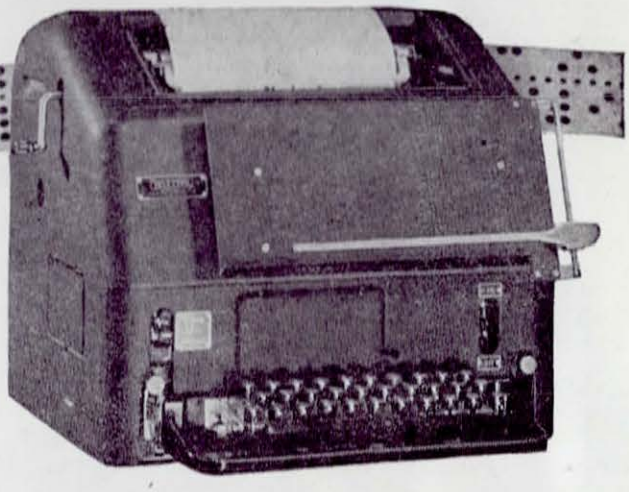
Company.....

Address.....

City.....Zone....State.....

10 Teletype Units for



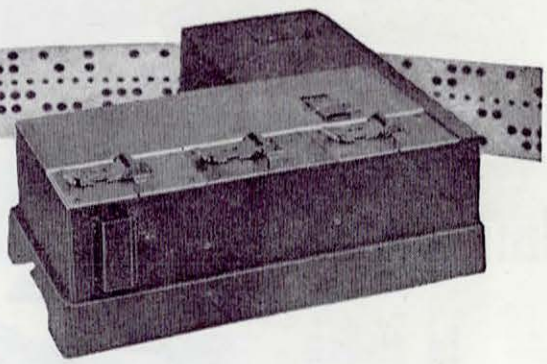


WHETHER you want to modernize your communications equipment, add to it, or install an entirely new system, you'll find a variety of Teletype Units shown here which will meet your most exacting needs.

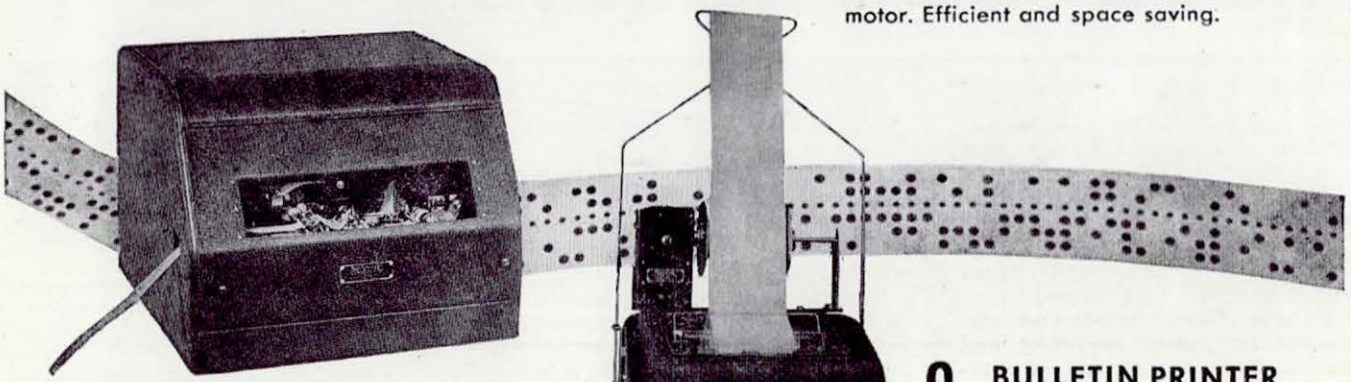
Teletype engineers — communication experts — will be glad to discuss your particular problems. Send for details to: *Teletype Corporation, 1400 Wrightwood Avenue, Chicago 14, Illinois.*

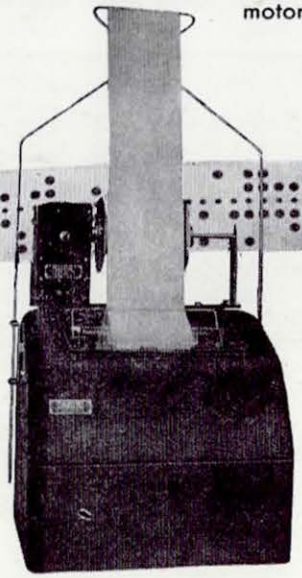
1. PAGE PRINTER may be sending-receiving or receiving only. Messages are printed on continuous roll or multifold paper 8½" wide.

4. TRANSMITTER DISTRIBUTOR automatically transmits messages or other intelligence to local or distant points when fed with perforated tape.



5. MULTIPLE TRANSMITTER DISTRIBUTOR combines three or six transmitters driven by a single motor. Efficient and space saving.

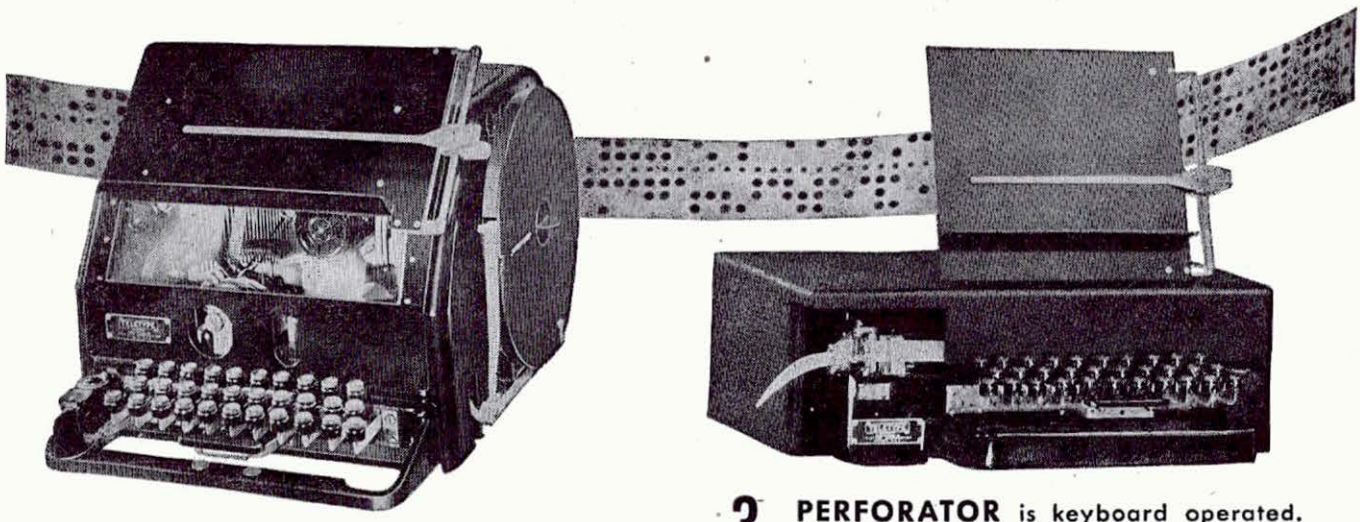




8. TYPING REPERFORATOR-TRANSMITTER-DISTRIBUTOR records incoming messages on printed and perforated tape, and automatically relays them to their destination.

9. BULLETIN PRINTER equipped with oversize type and display rack for bulletins, announcements, information or instructions.

up-to-the-minute Communications



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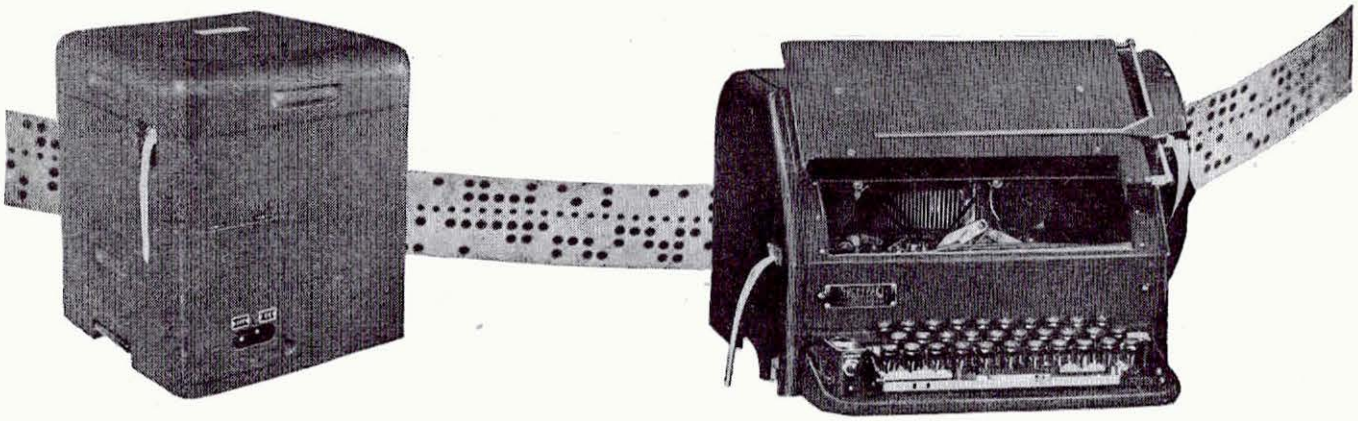

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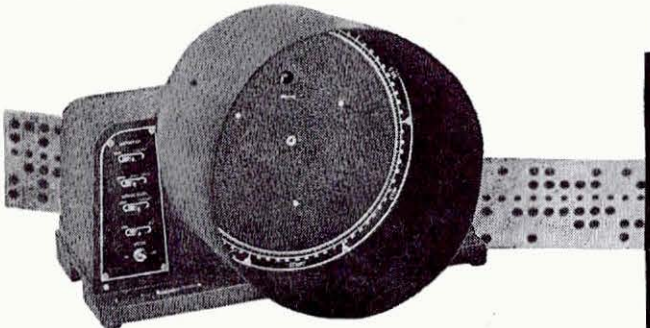

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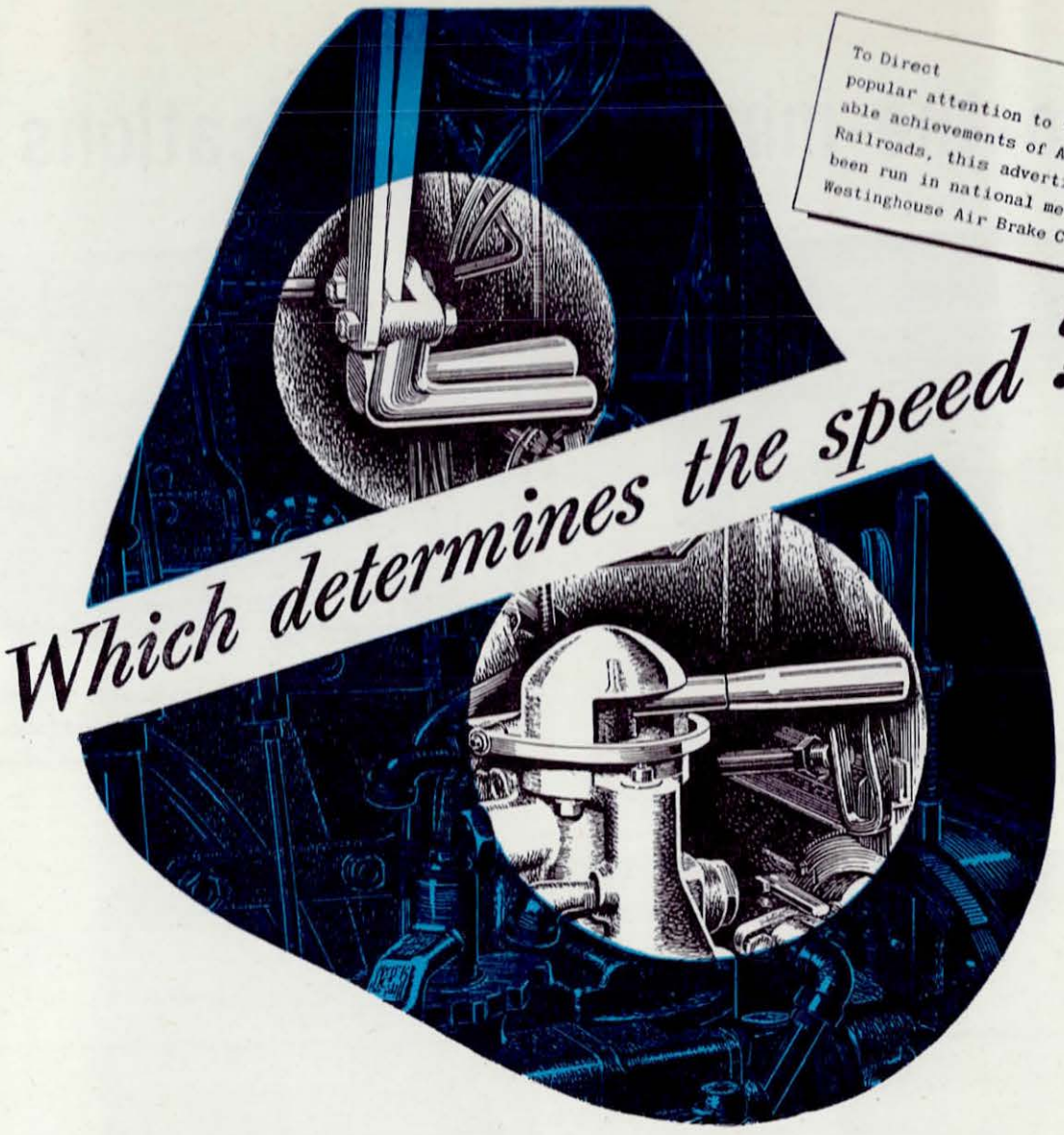

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Railway Age

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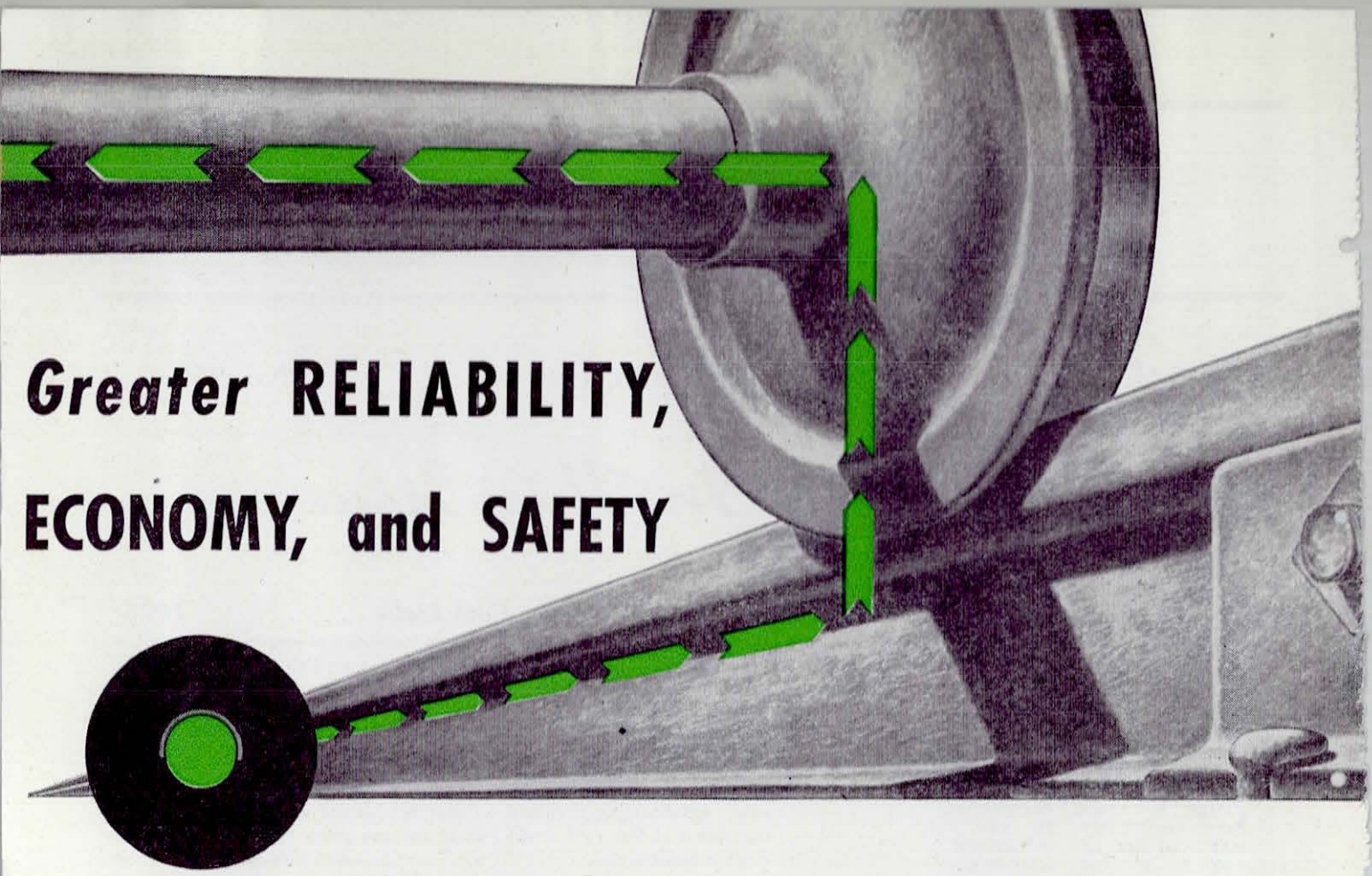

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The Week at a Glance

CONSERVATIVELY PUT: It is time to close the book on the war-time processes of political bargaining where there are differences between unions and management; it is time to bring about a return to a balanced economy and the establishment of more equalized relationships between employees and employers. This was the theme of a recent address at Buffalo by the firemen's leader, David B. Robertson, an abstract of which appears this week on page 1089. There is an idea floating around that the only way in which the unions can get "justice" in a controversy is through government intervention, says this old hand at the business, but he points out that this sort of aid has its price, with government becoming the master of the economy and industry its servant. The processes of the free market place can solve economic and social problems where a state-controlled system breaks down, and labor can obtain better living conditions and more real wages, in the long run, only through those free processes, he asserts.

●

SAVING MORE WEIGHT: Builders of passenger cars and of specialties going into them got together at the recent annual A. S. M. E. meeting in New York to discover just what each could contribute to further reductions in the weight of this type of equipment. One estimate advanced was that coaches could be built as much as 17,000 lb., or 14 per cent lighter, without omitting any essential part or appliance, if all the weight reductions possible were made in each specialty or part assembly used, wholly apart from any additional savings in the weight of the basic car structure that might be accomplished through the use of new high-strength materials and still closer attention to the design of components. Makers of air brakes and roller bearings were among those who pointed out how changes in specifications could be made to facilitate substantial weight reductions through modifications in the dimensions of their products. The discussions are summarized in a feature article this week.

●

MINUS COORDINATION: Another slant on the need for effective cooperation in passenger car design was presented at the A. S. M. E. meeting in the form of cartoons showing what a passenger car might look like if each of the several groups of specialists contributing to the construction of the product had its own unrestrained way in developing the design. Reproductions of a baker's dozen of these sketches of hypothetical cars illustrate the article on page 1082.

●

DIFFERENCE OF PRICE: The Interstate Commerce Commission has decided that it will be all right for the Nickel Plate to buy some more Wheeling & Lake Erie stock, and for the C. & O. to sell it, provided the transaction is completed at a price set by the commission, which happens to be quite a bit different from that agreed upon by the parties to the deal. And as to the New York Central's plea for a reservation, so to speak, of trackage rights on certain Wheeling lines, the commission's verdict is that it will cross that bridge when it gets to it. Details appear in the news pages.

●

KEEPING IN TOUCH: One way for an industry to carry on "public relations" activities, that is, to take its case to the people, is to allow an idea to germinate and then to carry it out in the hope that it will be effective. Another way is to substitute scientific public opinion testing for such hunches, and to develop public relations procedures on the results of these tests. In the past year or so the National Association of Manufacturers has made effective use of the latter technique, and, as this issue's leading editorial points out, the different approach the association has taken in its publicity activities has attracted a great deal of attention. The outstanding difference is the substitution of a positive program of action for a negative "view with alarm" policy. Our comment suggests that the railroads could very well make more use than they do now of objective research methods, and on the basis of such surveys could no doubt establish even closer relationships than now exist between their public relations problems and their prompt solution.

●

SPENDING TO SAVE: The economy of large rail sections has been demonstrated on the Bessemer & Lake Erie, says that road's F. R. Layng in a feature article in this issue. About one-fourth of that road's main tracks are laid with 152-lb. rail, and it is the author's opinion that the cost of the change to that weight from the 130-lb. section is recovered within three or four years in labor savings alone. Other advantages, likewise easily translated into dollars and cents, also are enumerated.

●

$22 MILLION FOR DIESELS: The Union Pacific has signed up to buy 64 more Diesel-electric locomotives in the past few days, a news story in this issue reports, and the order is the biggest on record for this type of equipment. It includes 29 switchers, 7 assemblies for passenger service and 28 for freight service. When this equipment is placed in service the U. P. line from Salt Lake City to Southern California will be entirely Diesel-powered.

●

CROSSER ACT QUESTIONED: That some of the rank-and-file brotherhood members who have analyzed the terms of the so-called Crosser law — which their leaders high-pressured through Congress last summer with much ado about the added "social security" it afforded railroad employees—have their doubts about being able to realize on its supposed advantages is indicated by an abstract, appearing herein, of one document being circulated in California to stimulate sentiment for repeal of the law.

RUNNING THE WHEELS OFF: Not only does Car Service Chairman Kendall repeat month after month his story of unprecedented demands for railroad cars —not entirely satisfied but generally pretty well met through the close cooperation of carriers and shippers—but he continues to predict that that uncomfortable condition will continue. The latest of his monthly reviews of the transportation situation is reported in this week's news. Two mine strikes within the year did not prevent the coal industry from establishing some new loading records, and similar situations prevailed in other commodities less affected by labor troubles. A tremendous volume of grain is still being held on the farms awaiting movement, and Mr. Kendall sees no prospect of a breathing spell if that grain is to be cleared away before the new harvest begins.

●

CONVERTED FOR COAL: What the Baltimore & Ohio has done to strengthen and renovate a group of branch lines, originally located to serve lumbering operations, so that it could efficiently develop and expand a productive and dependable coal field is told in an illustrated feature article in this issue. Bridge strengthening, heavier rail, new terminal facilities at a point convenient for classifying cars brought in from the tributary branches—these were some of the projects that had to be planned and executed to achieve the physical improvements required for the traffic anticipated. Altogether about 150 road miles of line was involved, on which relatively modest expenditures have made it practicable to handle a steadily-growing volume of traffic from mines already capable of turning out 320 cars of coal per day.

●

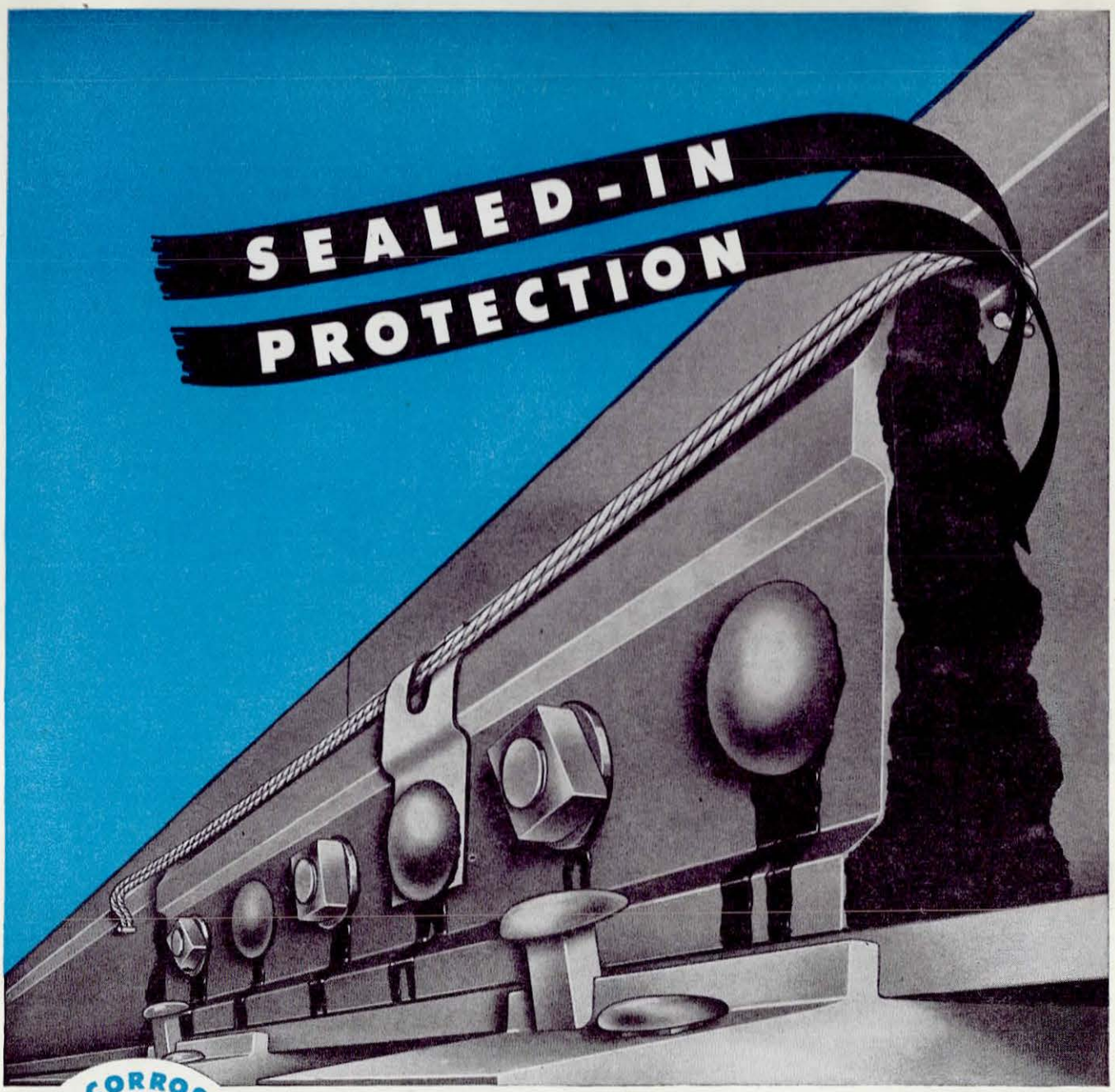
FLETCHER SUMS UP: In his year-end statement as A. A. R. president, appearing in the news pages, Judge Fletcher gives a picture of a busy but profitless period in railroad history, when, despite record peace-time traffic, the ratio of railroad expenses to revenues was above 80, a level so near disaster that it wasn't reached even in the worst of the great pre-war depression.

●

RUTLAND REPRIEVED: While the Interstate Commerce Commission isn't too sure that the Rutland will be able to make a go of it under its own power, even with no interest-bearing securities outstanding and no equipment obligations to service, it sees a reasonable prospect for better times for that railroad, and so approves a reorganization plan. At the same time the commission drops a very broad hint that it would welcome a chance to pass on a deal for the merger of the Rutland into a larger system.

●

NEWS IN BRIEF: With Clark Hungerford its new president, the Frisco is set to resume corporate management come New Year's. . . . T. P. & W. operation is picking up under a court order restraining interference.



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RAILWAY AGE

How to Minimize Debate and Maximize Results in Public Relations

The wide acclaim which the National Association of Manufacturers has won for itself by its recently adopted program of support for a positive program of political and economic action, replacing its old course which consisted largely of opposition to measures it regarded as unsound, merits the intelligent curiosity of the railroad industry, which has a problem of political and public relations quite similar to that of the N. A. M.

In essence, in its new approach to the public, the N. A. M. says that it will provide maximum employment at high wages, produce an abundance of goods at low prices, and pay a fair return to investors *if* the American people and government will give it an environment to work in which will permit healthy private initiative and thrift to function. It then proceeds to specify the details of legislation and administrative policy which it seeks. Such a program as this is far easier for most people to understand and far more appealing to them than a mere set of resolutions "viewing with alarm" practically everything that politics is doing to business, while promising no positive rewards to the public if it will accept business leadership in preference to that of politicians

Planning Based on Research

How has such a large organization as the N. A. M., representing so many diverse interests, been able to reach agreement on a program which represents such a sharp break with the past? A little booklet entitled "The Public Relations Programs of the National Association of Manufacturers" seems to provide the answer to that question. The association has, understandably, engaged for a long time on a large scale in publicity and other activities grouped under the general heading of "public relations". A little more than a year ago it adopted a new policy regarding these activities. Instead of embarking haphazardly upon this or that project for appealing to the public merely because "it seemed a good idea at the time," the N.A.M. public relations department began to rely extensively on scientific opinion testing, rather than on its hunches, both to assay its problem and to devise means for solving it.

Such testing revealed to the association the alarming fact that "collectivist ideology", instead of being limited to communists and socialists primarily of foreign origin, "has penetrated into the thinking of many segments of our population that are as American as apple pie." That is, there are certain occupational, age and income groups of Americans of which a substantial minority, or even a majority in some cases, favor maximum invasion by the government of the economy—they would, in short, welcome practically all the collectivist innovations which the extreme New Dealers have advocated.

The Positive Approach Pays

With such specific and detailed information before it, replacing a hazy suspicion which some persons might entertain but could not prove to others, the public relations department of the association saw clearly for itself, and was easily able to demonstrate to the N. A. M. membership, that private business "is faced with the biggest selling job it has ever faced—the job of selling the solid benefits of the American way to the American people against the competition of the glittering promises of the collectivist way." Incidentally, it was also this scientific opinion research which disclosed that the strength of anti-capitalist political leaders with the public lay in their promises of specific benefits to the electorate—whether they could actually deliver these benefits or not—while business leaders were weak in popular support because they promised nothing but only "viewed with alarm."

There is not sufficient space here to report further details of how the N. A. M. public relations officers, in cooperation with the leadership of the association, worked out a detailed program, both as to internal and external publicity, to meet the needs of the situation thus made explicit—but railroad men who are sufficiently interested can doubtless secure copies of the pamphlet, already referred to, which tells the story. The N. A. M.'s really significant achievement is that it has secured effective action because it relied upon objective opinion research rather than upon the unreliable power of rhetoric and persuasion to establish the facts to be dealt with, both those of the nature of the problem and of the effective means of solving it. If mere oratory had been depended upon, for instance, to convince a majority of manufacturers that a substantial proportion of several important groups of Americans had become thoroughly collectivist in their beliefs, the N. A. M. would probably today still be debating about what their problem consists of; and steps to solve it would only be a dim hope for the future. Actually knowing what the situation is, instead of having to rely on unsupported guesses, the N. A. M. had the courage to attack O. P. A. last spring when 80 per cent of the electorate favored

the agency, and had the satisfaction of seeing this percentage dwindle to a minority by September.

The Association of American Railroads has long depended on its annual surveys of public opinion as a major instrument in the determination of its well-planned public relations program, and any railroad man who has not seen the remarkably clear presentation of the A. A. R. program in the A. A. R. brochure entitled "Public Relations and the Railroads" is missing useful enlightenment. It is no derogation of the valuable work the A. A. R. has done in public relations—all, indeed, probably that it could have done under the terms of the assignment so far given to the A. A. R. public relations department—to observe that the N. A. M. program is far more comprehensive; and that it is based neither on the "please-the-public" theory which avoids all controversy nor on the "fighting" theory which is militant at all times regardless of public opinion. Moreover, the N. A. M. program is built upon constant and varied research of public opinion instead of only a once-a-year sampling.

The public relations problem of the railroads is not indentical with that of the manufacturing industry—but it is similar and is, if anything, more complex. The railroads could not, probably, take over the N. A. M. program lock, stock and barrel, but they could certainly afford to weigh the advantages of making an attack on their problem as comprehensive in scope as that of the N. A. M., and they also could profitably consider availing themselves of the N. A. M.'s experience by making much more general use of objective research, both to get at the problem and to determine methods of solution. The N. A. M. has demonstrated conclusively that this approach, by minimizing argument and debate, proceeds more rapidly to its goal, as well as with more certainty.

The Employer's Obligation

To believe the promises of the demagogic reformer or those who would destroy our freedom or form of government for an easy way of life under any other form of government, is to disregard historical experience. To swap our form of government for any other or to substitute an equal division of all production for equality of opportunity based on productive ability and performance would be parting with our substance for a discredited promise. Industry's obligation is to spread the truth.

Employees should be educated in an understanding that free enterprise is not a *profit* system alone, but also a *loss* system where the incompetent fail. They should be told more details of business and the part capital expenditures, improvements and investments play in promoting greater ease of labor, higher wages, shorter working hours, higher production and lower prices for even better goods. They should be told of the desirability and necessity for investors to receive a fair reward for the risk they take in establishing and operating a business which affords the employees work under advantageous conditions. They should be told of the deadening effect of high taxes on the enlargement of business and the opportunity for still greater employment.

I have no fault with collective bargaining in itself and believe many of its difficulties arise from existing laws and from the poor understanding by employees of the free enterprise system. They have been tutored too long by labor leaders alone who have given only a part of the whole necessary story. Again, the greatest thing that could happen to labor and the consumer would be a greater integrity of the laborer in production—an honest day's work for an honest day's pay is more than a slogan, it is a desirable goal. The field lies ahead for constructive work by the employer.

—James B. Hill, president of the Louisville & Nashville.

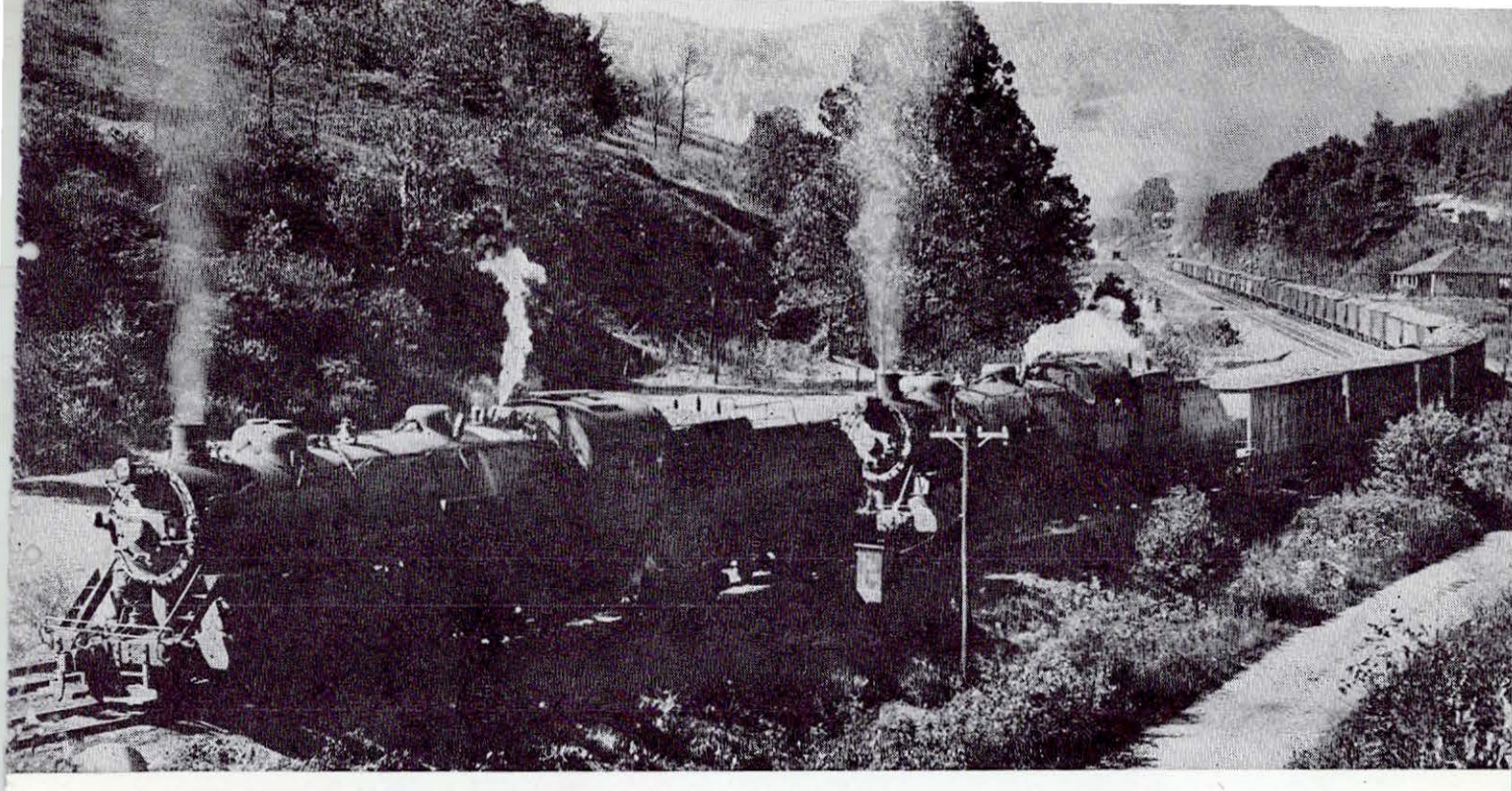
Cars Are a Compromise

At the forum on weight-reduction possibilities for passenger cars, held at the sessions of the Railroad Division, American Society of Mechanical Engineers, during the recent annual meeting of the Society, a series of cartoons were shown caricaturing the passenger car as it would look if each one of a dozen persons, with differing specialized interests, had his way in its design. Depending upon the particular interest of the group that had its way, as the reader may see elsewhere in this issue, the cars depicted by the cartoons range from an overgrown soapbox wagon, to please the simple tastes of the production group, to a series of grotesque vehicles, each overloaded with the products of a particular faction of specialists to satisfy its requirements for space and, perhaps, its desire for volume in sales.

Why do the cars that actually roll out of the car builders' shops have little resemblance to any of the caricatures shown? The answer lies, of course, in the fact that no one person had his way in determining the materials and equipment that go into the final product. The designs are compromises between varied interests, with concessions being made by everyone involved, and it appears probable that future designs will continue to be the result of finding a balance between desirable objectives and practicable attainments.

The railroads' goal is to build passenger cars lighter, cheaper and better. As brought out at the forum, cars can be built lighter by the use of available materials or new designs but, in general, the costs would be greater. Although one chief mechanical officer set a figure of one dollar a pound saved as the premium he was willing to pay for a reduction in weight, no general agreement on this point was evident at the meeting. Some manufacturers agreed that they could build their products lighter but not without sacrificing desirable characteristics such as dependability, durability and economy in operation and maintenance; others believed they could do better if what they considered unreasonable conditions were removed. In at least one instance, that of using head-end generating equipment as a solution to the demand for more electrical power, practical difficulties in train operation are a stumbling block.

In spite of these obstacles progress will be made in producing lighter, better and cheaper cars; quite definite suggestions on how to do so were made at the forum. This progress will be made, as in the past, by a compromise of all the factors influencing car design, with the exception of that of safety. None of the cars of the future, however, will resemble those shown in the cartoons because passenger cars are built for the purpose of carrying passengers in comfort and safety; they never quite satisfy the whims of any one group of enthusiastic specialists.



The rugged terrain results in heavy grades and curves. A four-engine coal train en route from Cowen to Grafton, at Orlando, W. Va.

Baltimore & Ohio Taps New Coal Field

Skillful and economical improvements in railway facilities and operation provide outlet to undeveloped resources and convert light traffic lines into stabilizers of coal traffic

DURING the past five years the Baltimore & Ohio has been engaged in a program of coal-traffic development which has resulted in the opening of the new 730-million ton Gauley coal field in the mountainous country of southern West Virginia. Extensive improvements in railroad facilities and operation to equip and coordinate several light-traffic railroads to carry out the coal were vital in this program. Twenty mines in this territory, using belt conveyors, mechanical loaders and other modern equipment are now producing at a rated capacity* of 320 cars of high-grade bituminous coal a day. Other mines are under construction, and the railroads have been converted, at relatively little expense, into strong members of the system that will have a pronounced effect in stabilizing the railroad's coal traffic in the future.

Immense Resources

Coal from this area will exceed 2.5 million tons this year despite coal strikes and car shortages, and output has grown from year to year as follows:

1938	14,000 Tons
1939	53,000 Tons
1940	111,000 Tons
1941	319,000 Tons
1942	618,000 Tons
1943	924,000 Tons
1944	1,961,000 Tons
1945	2,464,000 Tons
1946 (7 mos.)	1,465,000 Tons

The B. & O.'s interest in this territory dates back to 1889 when it acquired the West Virginia & Pittsburgh, a lumber railroad which ran from Clarksburg, W. Va., south to Richwood. Clarksburg is on the B. & O. main line in the northern part of the state. The purchase included 130,000 acres of timber and coal land on the Gauley river and its tributaries. The B. & O. lumbered this area and operated its own saw mill until 1906, when the land was sold, and it has since become a part of the Monongahela national forest. However, it was known to contain coal and the mineral rights were reserved. During the next 20 years more land was acquired as the existence of a large body of premium coal of mineable thickness all through the territory became more apparent, giving the B. & O. a fair measure of control over any future coal development in the area.

The largest bed of coal in the area is Sewell coal, but six other known seams, averaging from 40 to 80 in. in thickness, have been found at levels varying from 200 ft. below the streams to 1,200 ft. above them. These all contain high or medium-volatile and low-ash and low-sulphur coals which can be recovered in quantities approximately as follows:

Seam	Mineable Acres	Recoverable Tons
Sewell	95,420	376,200,000
No. 5 Block	50,000	180,000,000
Eagle	60,000	120,000,000
Others	30,000	60,000,000
Total	235,420	736,200,000

Mining in this area was discussed from time to time during the last 25 years, but preoccupation elsewhere and numerous practical problems stood in the way of progress. In 1938, with rail traffic at a low ebb, the subject was agitated with new fervor. Systematic study of the field was begun and a program of bridge strengthening was started by the B. & O., but development was slow because of economic conditions confronting the bituminous coal industry and only two mines of any consequence flourished in the field prior to the war. In 1941, however, the persistence of the optimists

* Basis of furnishing cars to established mines.

bore fruit and the B. & O., influenced by the increased demand for coal of high quality and the prospect of an early decline in the available supply of Sewell coal in other fields, adopted an active and liberal policy for the orderly development of the region on a sound basis.

Routes to New Field

The major part of the B. & O.'s program for the development was the improvement of existing lines and the construction of additional spurs and other rail facilities. Previous to 1940 there were two routes into the field, the one from Clarksburg over the original line to Richwood, and the other starting from Grafton on the main line, 23 miles east of Clarksburg, running 38 miles south to Buckhannon, and thence 37 miles west on the Charleston line to Burnsville Jct., where the two lines crossed. The Clarksburg line was the shorter route, but the grades and curves north of Burnsville Jct. were bad. The Grafton line has a 1.56 per cent limiting grade between Burnsville and Buckhannon, but had been completely reconstructed both as to grade and location in some places in recent years, and was in condition for heavy traffic. It is also the route to other branches. About 20 miles of the Clarksburg line north of Burnsville Jct. was, therefore, abandoned in 1940. Later the old connection between the line from Richwood and the line to Grafton was rebuilt to permit through movements from Richwood to Grafton without having to turn engines at Burnsville Jct.

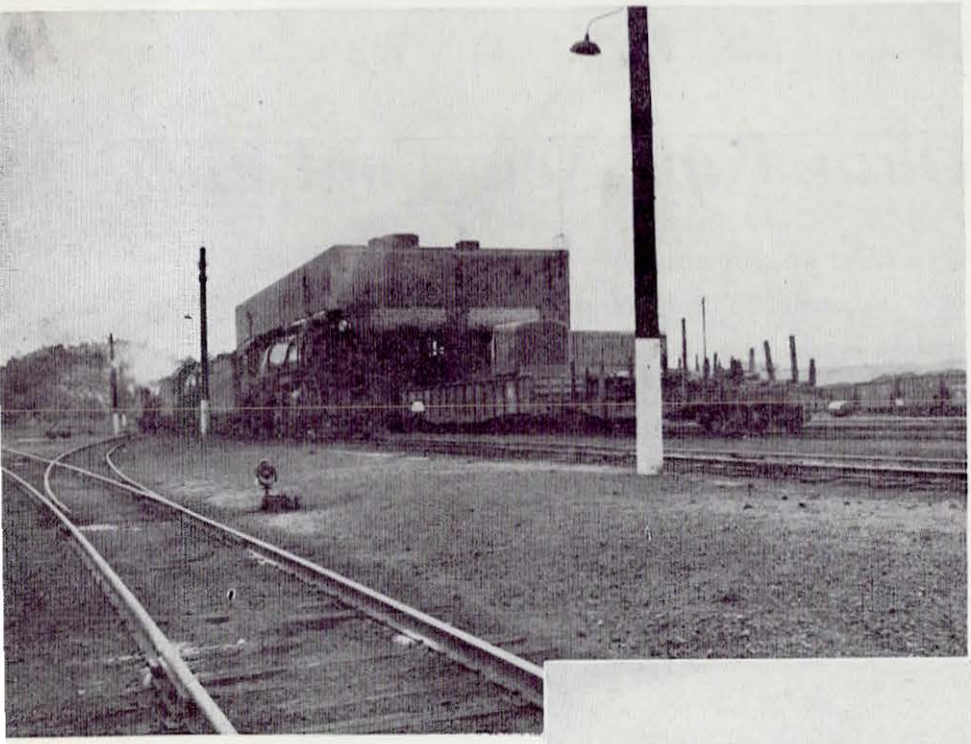
South of Burnsville Jct were five railroads; the B. & O., running 72 miles due south to Richwood; the Cherry River Boom & Lumber Company's railroad, branching off the B. & O. line at Allingdale, 24 miles north of Richwood and running east 33 miles up the Gauley river; the Strouds Creek & Muddlety, branching off the B. & O. line at Allingdale and running west 8.5 miles; the Birch Valley Lumber Company's railroad, running 12 miles beyond the Strouds Creek & Muddlety; and the Saxman, branching off the B. & O. 3 miles north of Richwood, and running 3.5 miles up Laurel creek.

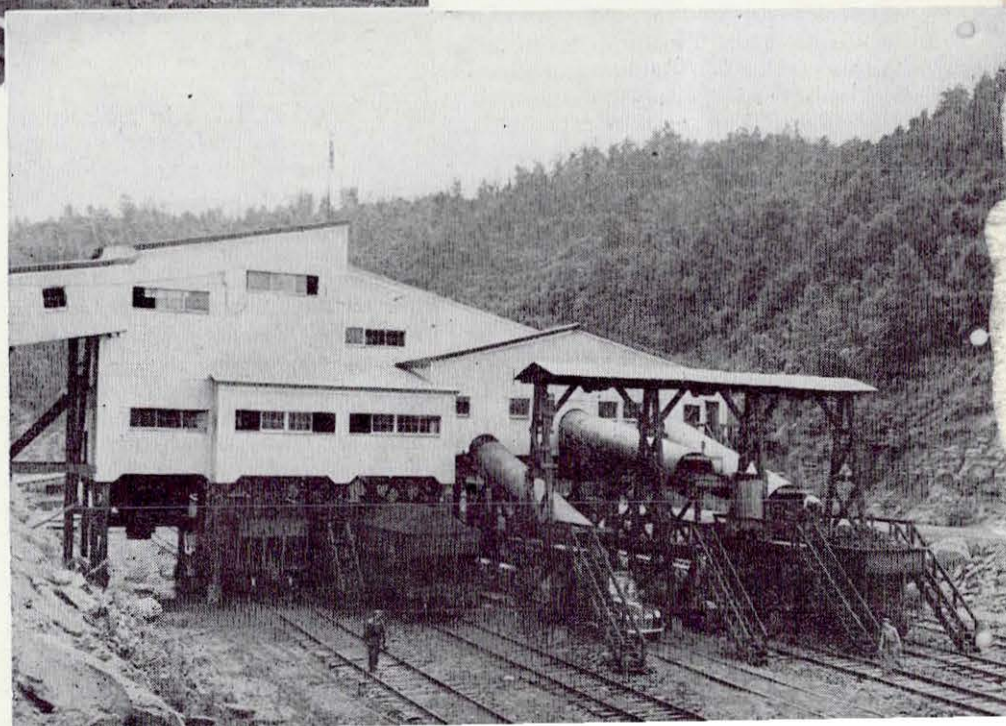
It was evident in the beginning that the existing line of the B. & O. was strategically located to serve the development, but it was also obvious that all these railroads would have to be improved substantially to carry heavy traffic. This country is mountainous but the canyons are generally wide enough for railroad track, and water grades were available for substantially all new mileage required, which kept construction costs at a minimum.

Heavier Rail and Bridges

Prior to 1940 the track on the B. & O.'s branch to Richwood was laid with 60-lb. and 70-lb. rail, on cinder ballast, while bridges restricted equipment to pay loads of 40 tons and to Consolidation-type locomotives weighing 121,200 lb. on drivers and developing only 35,100 lb. tractive effort. Curvature and a 1.47 per cent grade against outbound movements between Allingdale and Cowen, where the terminal was built, limited these locomotives to trains of 625 tons, while curvature and a 1.56 per cent grade at Flatwoods, between Cowen and Burnsville Jct., restricted trains to 525 tons. Loading cars half full was a serious handicap to mine operators and uneconomical for the railroad.

Nothing could be done for the present about the grades, but the line was relaid with 85-lb. and 100-lb. second-hand rail on light grades and with 131-lb. rail on





Above — The enginehouse and locomotive repair shop at Cowen. Right—A seven-track tipple on the Panther Creek spur prepares coal into five sizes

the heavier grades, with treated ties and tie plates and slag or cinder ballast. All restricting bridges which could not be eliminated were strengthened, usually by erecting an intermediate pier and replacing old and weak girders with steel I-beams. This permitted full loading of cars and the use of McArthur-type locomotives weighing 223,600 lb. on drivers, with 54,600 lb. tractive effort. These locomotives can haul 1,375 tons to Cowen and 1,250 tons from Cowen to Burnsville Jct.

A Modern Terminal

The railroad had a small terminal at Richwood but the facilities were inadequate and the location unsuited for coal traffic. By contrast, Cowen, situated in an open valley 27 miles north of Richwood, is a natural hub from which the Gauley field can be served by comparatively short radiating lines and is an ideal gathering point for coal cars from all branches. It also affords unrestricted room on comparatively level land for all present and future needs in terminal facilities and townsites. It is also possible from Cowen to eliminate an 18-mile haul on traffic interchanged with the Cherry River Boom & Lumber Company's railroad and the necessity of hauling coal from this line over a steep grade on the B. & O.'s line between the junction and Cowen.

A terminal, accordingly, was built at Cowen, consisting of four yard tracks for holding 225 cars; a wye; a modern 2-track, through-type enginehouse; a 2-track coal and sand tower; a mechanical cinder hoist; and water facilities. The facilities also include rest houses, a restaurant, and recreation rooms for employees. Recently an automatic track scale and a billing office were built, together with a classification yard, where all coal can be weighed, billed and classified before it leaves the field. The water station consists of an automatic pumping station on the Gauley river about three miles from Cowen, which pumps water through an 8-in. pipe line to a 100,000-gal. storage tank near Cowen. The water flows from the storage tank through a 10-in. pipe, one mile long, to the terminal, where it is treated. The town of Cowen also obtains its water supply from this storage tank.

The Cherry River Boom & Lumber Company is still logging up the Gauley river and also south of Richwood, and was using its railroad on the Gauley to haul logs down to the junction with the B. & O. at Allingdale, and thence over the B. & O. to Richwood, where it has one of the two large saw mills left in the region. This company, however, had also become a coal operator and its railroad was well located for other coal mining on either side of the river. The B. & O., therefore, concluded a trackage and operating agreement whereby the two railroads are considered as one as far as the development of coal in the upper Gauley area is concerned.

To make this arrangement completely effective and economical, a connection four miles long was built from Cowen south to Donaldson on the Cherry River railroad, and the round-about connection with the B. & O. at Allingdale, further downstream, was discontinued. Meanwhile the lumber company overhauled its own track by changing the alinement in places to reduce excessive curvature, by replacing 60-lb. rail in main tracks with 100-lb. rail, renewing old untreated ties with treated ties, applying ballast, and eliminating log bridges or rebuilding them with steel girders on concrete piers.

The B. & O. also built interchange tracks at Donaldson and side tracks for two large mines near the lower end of this railroad. In addition, the B. & O. built a two-mile spur from a point near the upper end of the Cherry River railroad to a new mine in Williams Camp Run. The end of this spur is 2,740 ft. above sea level, and is the highest point on the B. & O. system. Four mines with a present rating of 95 cars a day are now located on the Cherry River railroad.

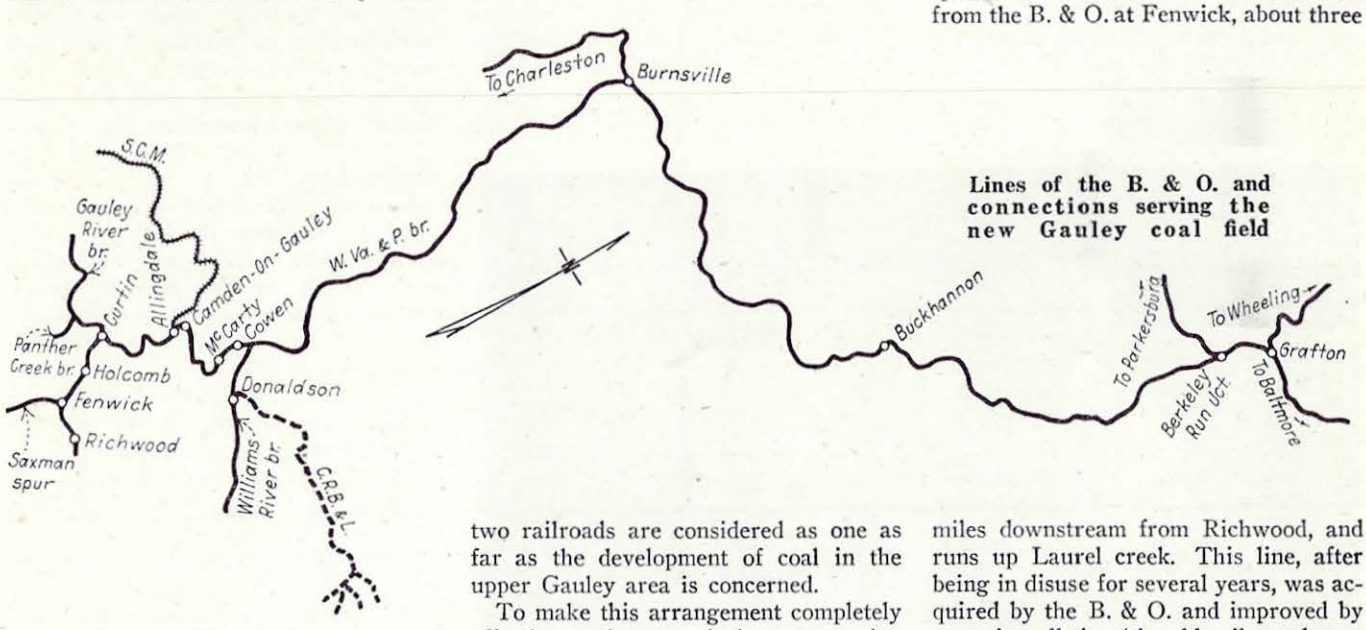
At Donaldson, where the Cherry River line now joins the B. & O., the Williams river flows into the Gauley river from the southeast. When building the short-cut from Cowen south to the Cherry River railroad at this point, the B. & O. also built a new seven-mile branch up this valley on the route of an abandoned logging railroad, where a new mine, with a 5-track tipple and a 3,000-ft. belt conveyor, is now operating at a present rated capacity of 21 cars a day.

Continuing clockwise, with Cowen as the pivot, the next development is at Richwood, the end of the B. & O.'s line, where the Cherry River Boom & Lumber Company built two spurs about seven miles long for logging and mining on the south fork of the Cherry river.

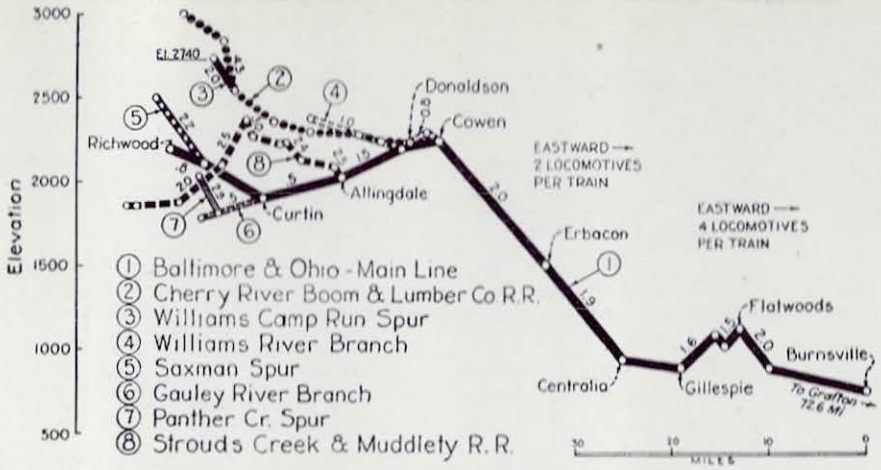
The next improvement is the Saxman spur, which branches off to the southwest from the B. & O. at Fenwick, about three miles downstream from Richwood, and runs up Laurel creek. This line, after being in disuse for several years, was acquired by the B. & O. and improved by renewing all ties (the old rail was heavy enough) and strengthening the bridges to hold fully-loaded coal cars. A 1½-mi. extension was also added, making a spur five miles long. A combined underground and strip mine on this line has a present rated capacity of 34 cars of coal a day, exclusive of 50 coke ovens which are producing two or three cars of coke a day.

At Holcomb, on the B. & O., two miles further downstream from Richwood, the rail and creosoted ties have been laid for a siding for a new mine under construction on the opposite side of the river from the railroad.

At Curtin, nine miles downstream from Richwood, the B. & O. had its most difficult problem in building a six-

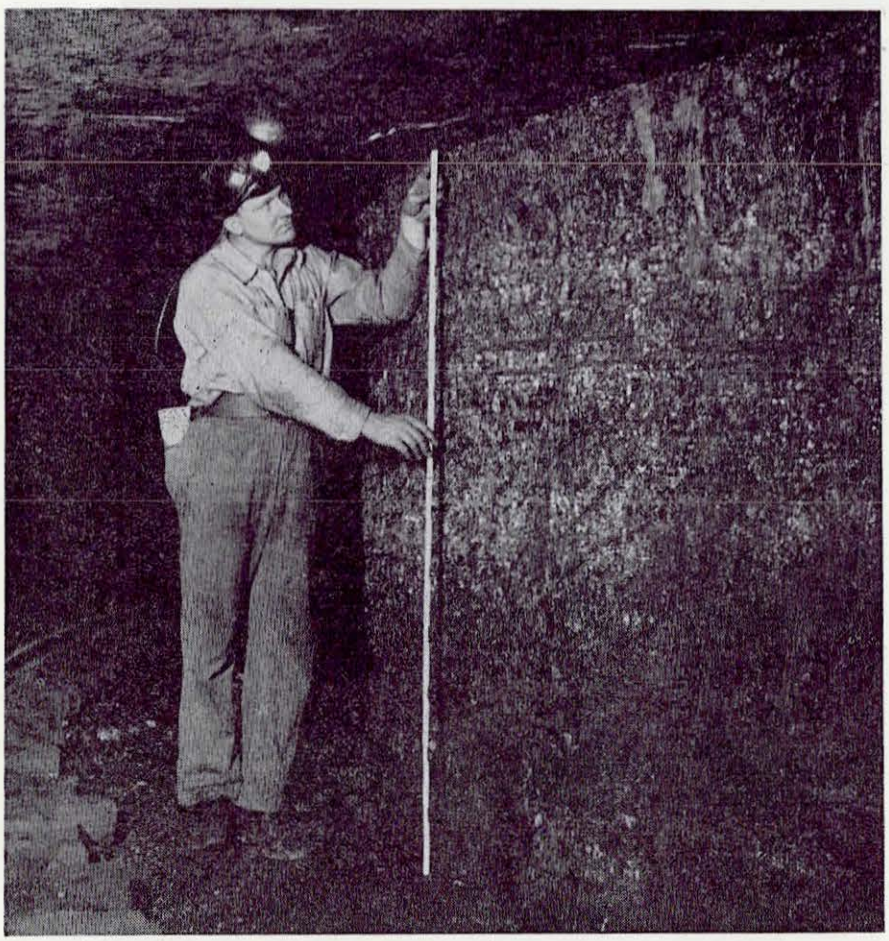


Lines of the B. & O. and connections serving the new Gauley coal field



Condensed chart showing railroad grades from the coal mines to Cowen and the junction with the line to Grafton, W. Va.

mile branch in the canyon of the lower Gauley river and a connecting branch two miles long up Panther creek. Water-level grade was available but the river flows through a narrow, twisting gorge several miles long in this location. A three-span steel-girder bridge on concrete piers carries the track across the Cherry river at the junction with the main line. Heavy blasting was required to build the railroad well above high water in the gorge. This railroad forms one of the new scenic attractions of the area by making a 221-deg. swing in rounding the narrow, deep and wooded bend of the Gauley river, known as Crupperneck bend. Four new mines, including a seven-track tipple, are operating on this branch at a present rated capacity of 94 cars a day. A belt conveyor supported on a high steel bridge carries the coal from one mine across the river.



A six-foot thick seam of high-grade coal in the Gauley field

Steep Grades on Strouds Creek

The last branch, clockwise from Cowen, is a combination of the Strouds Creek & Muddlety and the Birch Valley extending west from Allingdale. This route crosses the divide between Strouds creek and Muddlety creek and, besides having a multiplicity of curves, including several curves of 14 deg., it has a 3.0 per cent grade against inbound movements and a 2.5 per cent grade against some of the outbound coal. These are the most severe grades in the field. Both railroads were also in poor condition.

The Strouds Creek used 45, 56 and 60-lb. rail and was largely unballasted. The Birch Valley had recently discontinued logging and was partially washed out. These two routes, however, gave access to large acreages underlaid with seams of good coal not found south of the Gauley river. They also enter the valley of Muddlety creek which had never had any rail service. A long-term lease was therefore taken by the B. & O. on the Strouds Creek while the Birch Valley property was purchased and added to the Strouds Creek, which now operates both lines.

B. & O. forces improved the Strouds Creek by replacing the light rail with 85- and 100-lb. rail, applying slag ballast, strengthening bridges and improving drainage, while the Birch Valley tracks and bridges were completely rebuilt, on new grades at many points. Four interchange tracks were built at Allingdale, and the west end of the line was extended three miles from its old terminus at Muddlety to serve two new mines. Another spur was recently built up McMillion creek, 1½ miles from Muddlety to another mine. Team tracks were also built alongside the state highway at Muddlety for use by farmers, road builders and a lumber mill, as well as by wagon coal mines. Eight coal mines, including three strip mines, with a combined present rated capacity of 77 cars a day, are now loading on this railroad.

The combined program of physical improvements, including improvements made by the short lines, embraced about 150 road miles, consisting of 105 miles of main track and spurs in the field south of Cowen, and 45 miles of the B. & O. between Cowen and the junction with the Grafton line at Burnsville. This program, which equipped the entire line for handling trains of fully-loaded coal cars of any size, was accomplished with only about 25 miles of new construction by the B. & O. and, except for rail laying and bridge strengthening and the Cowen

yard and engine terminal at Cowen, has cost the B. & O. to date only $2,500,000.

The physical characteristics of the B. & O. from Grafton to Richwood, exclusive of affiliated branch lines in the coal field, are as follows:

Miles of main line	145
Miles of curve	74
Miles of tangent	71
Number of curves	571
Sharpest curve	15°0'
Average curve	5°36'
Total curvature, complete circles	60.15
Railroad bridges	126
Highway bridges	9
Longest railroad bridge, feet	1,200
Miles of bridges	2.41
Miles of steel bridges	1.66
Number of tunnels	9
Miles of tunnels	1.41
Longest tunnel, feet	2,345
Miles of ascending grade inbound	84.6
Miles of descending grade inbound	56.9
Miles of level track	3.9
Total rise, feet	3,009
Total fall, feet	1,821
Max. ascending grade inbound, per cent	2.00
Average ascending grade inbound, per cent	.67
Max. ascending grade outbound	1.56
Average grade ascending outbound	.61

Efficient Train Operation

Within the coal field itself all operations are conducted on a basis of turn-around runs originating and terminating at Cowen. These runs are set up to meet trains of empties arriving at Cowen on definite schedules so that the cars can be moved immediately to the mines and placed for loading. Returning, these turn-arounds bring the loaded cars into Cowen where they are promptly classified, weighed and billed and the outbound trains built up for through movement. In addition to these turn-arounds, a turn-around local operates between Cowen and Richwood, handling merchandise for local stations and performing all switching of team tracks at these stations. This local returns to Cowen with loads consisting chiefly of forest products picked up at Richwood and intermediate stations.

Between Gauley Mills and McCartys Siding, five miles and three miles west of Cowen, respectively, is a 1.47-per cent grade which limits a single engine to 15 cars. However, 45 cars can be handled by a single engine east and west of this grade. All locals and turn-arounds operating over this line into Cowen from the coalfield are, therefore, given 45-car trains, which the engine moves over the grade by making two doubles. On the Cowen-Donaldson cut-off, a single engine is capable of handling 25 cars, but here again the turn-arounds make as many doubles as may be necessary to bring their loads into the Cowen terminal. The grades on the Cherry River railroad and on the Williams River branch are in favor of the loaded movement into Donaldson, so that a single engine can handle 90 or more loads. On the Strouds Creek heavy helpers, leased from the Baltimore & Ohio, assist trains over the short, heavy grades.

Four to six tonnage trains leave Cowen daily. Since most of the tonnage from the new coal field usually moves eastward out of Grafton, only a simple classification is required in the coal field, viz., local shipments, eastward cars and westward cars. The primary aim is to assemble trains at Cowen which can be moved over the main line with the least switching at Grafton. The motive power, therefore, is assigned to this branch so that coal can be assembled in trains of 4,550 adjusted tons for Grafton, which is only 50 tons more than the tonnage rating eastbound on the main line.

Leaving Cowen, a full coal train consists of two McArthur-type engines with a train of 4,550 adjusted tons. At Gillespie, 25 miles east of Cowen, two helpers dispatched from Buckhannon are added to the train and assist the train over several 1.5-per cent grades to Buckhannon 57 miles further east. At this point the two helpers, and also the second engine from Cowen, are dropped and the train covers the remaining 38 miles to Grafton with one engine. Cars are classified at Cowen for movement westbound or eastbound through Grafton. When light tonnage is handled these trains are filled out at Grafton with coal, lumber and miscellaneous loads.

Trains leaving Grafton for Cowen consist principally of empty coal cars. These trains are handled with one engine from Grafton to Buckhannon, where a second engine is added to assist the train to Cowen. This additional locomotive is actually required only from Burnsville to Cowen to climb the 2-per cent grades at Flatwoods and from Centralia to Cowen, but the engine is required on the loaded movement from Cowen to Buckhannon so it is attached to the train at Buckhannon. The two additional helper engines, which assist eastward trains from Gillespie to Buckhannon, move light from Buckhannon to Gillespie.

Train operation between Grafton and Richwood is by the timetable and train order method, supplemented by a positive manual block for following movements in which passenger trains are involved. Dispatching is by telephone and a new message circuit has just been completed from Grafton to Richwood, which permits unrestricted communication from all points on this line.

Prior to this development, very little coal of the type produced in the new field was mined adjacent to B. & O. rails. With the opening of this field, the B. & O. now has direct access to all of the major coal types produced in the northeastern section of the country.

A second important benefit gained by this development is the stabilizing effect on the coal traffic of the road, since the experience of other mining areas indicates a steady market for these coals.

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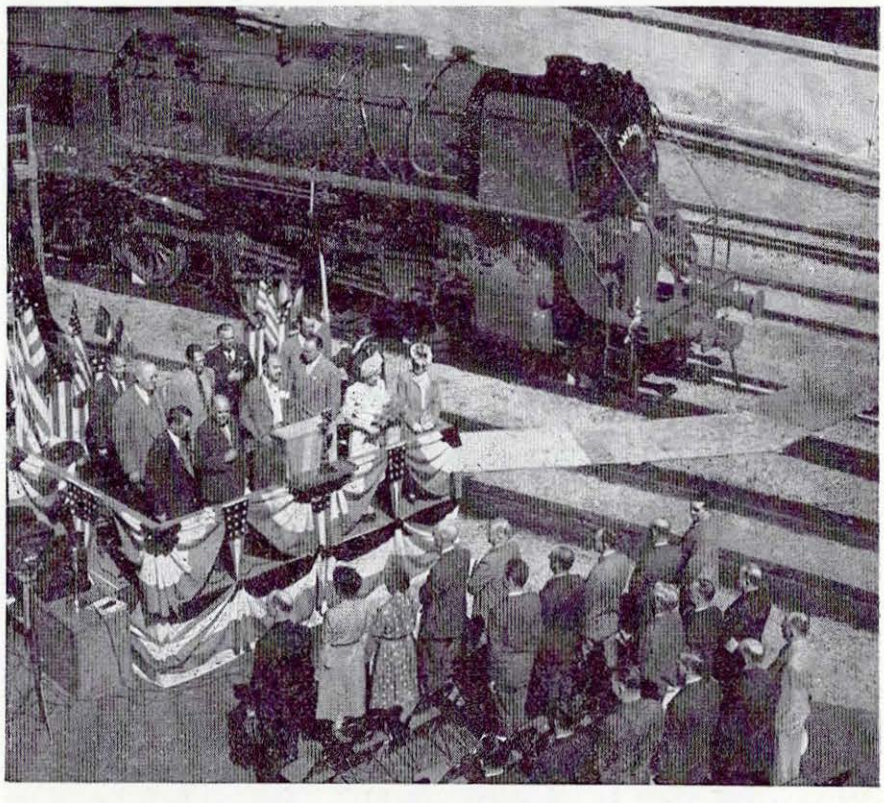


Ceremonies at the American Locomotive Company plant at Schenectady, N. Y., as the eightieth locomotive in an order for Belgian railroads was completed. Leaders in Belgian diplomatic and commercial circles attended brief exercises to mark the event and to watch the locomotive christening

In double-track territory on the Bessemer & Lake Erie, laid with 152-lb. rail

Reducing Upkeep Costs with Heavy Rail

Experience of the Bessemer & Lake Erie shows that the greater track stiffness obtained with larger sections brings about substantial economies in maintenance

By F. R. LAYNG

Vice-President and Chief Engineer
Bessemer & Lake Erie

THE increasing hourly cost of the labor employed by the maintenance of way departments of the railroads emphasizes the necessity of finding ways to economize in the use of such labor. At the present time probably 60 per cent, and in some cases as much as 70 per cent, of the costs of maintaining the tracks and structures are directly chargeable to labor, and I suspect that future changes in agreements covering working conditions will tend further to increase these expenditures.

Since it is hardly possible that we can look forward to a reduction in labor rates, the only alternative is to devise other ways and means to reduce expenditures. There are various steps that can be taken to accomplish this end, one of which is to increase the stiffness of the track structure, a step that has a profound effect on the amount of labor required to keep the track in proper line and surface, as well as on other items of track maintenance.

Track Maintenance Costs

An analysis of the labor expended on track laying and surfacing on the Bessemer & Lake Erie shows the following relationship between the various operations included in this account:

	Per cent of Total
Applying ballast	15
Applying ties	15
Applying rail	10
Applying other track material	5
Track maintenance (lining, surfacing, gaging, tightening bolts, etc.)	55

As the item of track maintenance constitutes over half of the account, this item should be analyzed carefully with the idea of making any possible reduction. This work consists principally of restoring line, surface and gage, and it is well known that the stiffer the track structure, the less labor will be required to hold it to a desired standard. This has become more evident in the last ten years, during which time there has been a marked increase in speeds, volume of traffic, and weight of both passenger and freight equipment.

In the construction of stiffer track the item of rail is most important. In his book on the Economic Theory of Railway Location, A. M. Wellington forcefully emphasized the importance of stiffness in rail. He is quoted as follows: "In buying rails we are not buying steel; at least we do not care to buy it. We are buying three imponderable qualities, (1) stiffness, (2) strength, (3) durability. If we get our money's worth of these qualities it is a matter of complete indifference (except the future scrap value of the steel) whether we get much or little steel. If we do not get our money's worth of what we want our bargain is just as bad however much steel we get." He then asks the question, "How much stiffness do we get for a dollar with light or heavy rails?"

Table I compares the stiffness of the sections now commonly in use, and reduces this quality to what it costs per ton in the several sections listed, on the basis that a ton of steel rail costs $47. From this table it will be seen that stiffness can be secured at a much cheaper rate in the heavier sections. As the table shows, if in the 90-lb. section the stiffness purchased costs $47 per ton, in the 152-lb. section the stiffness purchased costs $14.20 per ton.

How It Saves Labor

Owing to the increase in stiffness as the weight of rail increases, there is a marked reduction in the amount of labor required to maintain track. Lack of stiffness accentuates the wave motion of the rail, thus causing increased vertical movement of the ties. These repeated blows wear out the ballast and tend to drive fine material up from the subgrade through the ballast and foul it. Then, with increased moisture conditions, churning results. Since the greater stiffness of heavier rail reduces the amplitude of wave motion, and therefore the vertical movement of the ties, churning is minimized and the amount of labor involved in surfacing track is reduced.

Table I—Cost per Ton of Stiffness in Various Rail Sections

Rail Section	Moment of Inertia	Stiffness Compared with 90-lb. RA (Per Cent)	Price per Ton Stiffness
90-lb. RA	38.70	100	$47.00
100-lb. A (ASCE)	43.97	113.6	41.50
100-lb. B (ARA)	41.30	106.7	44.10
112-lb. RE	65.5	169.2	27.80
130-lb. PS	72.8	188.1	25.00
131-lb. RE	88.5	228.6	20.60
152-lb. PS	128.0	330.8	14.20

In 1917 we started to replace 100-lb. rail in our main tracks with the 130-lb. section. That year we used 1,257,000 man-hours chargeable to Account 220, Track Laying and Surfacing. In 1934 we adopted the 131-lb. section and in 1939 we adopted the 152-lb. section. In 1939 we used 493,800 man-hours chargeable to Account 220.

By the end of 1945 we had relaid about 25 per cent of our main tracks with the 152-lb. section. In that year we used 448,400 man-hours chargeable to Account 220. During this period (1917 to 1945) our standards for track maintenance have been steadily raised; and tonnage, wheel loads and speeds all have increased. If the man-hours charged to Account 220 in 1917 are given a value of 100, the corresponding value for 1939 was 39.3, while for 1945 it was 35.7. Our belief is that the principal reason for the reduction has been the use of heavier rail sections.

Other Savings

The heavier rail section not only beneficially affects track laying and surfacing but also practically every element making up the track structure, and contributes materially to the reduction in labor required to maintain each of the items involved. Some of these savings are discussed briefly in the following paragraph.

The larger rail sections provide deeper angle bars and, therefore, stronger joints. Also, such sections have a longer service life than lighter rail. In this connection, it should be emphasized that end hardening, the building up of battered rail ends, the use of rail lubricators, etc., have made substantial contributions to the longer life of rail. Under average main-line conditions, the average life of 100-lb. rail on our road was 6½ years. The average life of 130-lb. rail was 13 years. These figures relate to the period before we adopted end hardening, the building up of rail ends and the use of rail lubricators, but they do show very definitely the increased service life secured in passing from the 100-lb. section to the 130-lb. section. Our experience with the 152-lb. section is too short to give definite figures as to average service life but we believe that there will be a substantial increase compared with the 130- or 131-lb. sections.

Increasing the weight of rail also increases the service life of ties. By reason of greater girder strength the larger rail distributes the load over a greater number of ties, thus reducing the stresses in the individual ties. The larger tie plates that are used with the heavier rail sections also contribute to decreasing the unit pressure on the individual ties by spreading the load over a larger area. Ties also fail in large numbers as a result of mechanical wear caused by movement between the tie plates and the ties. This wear is greatly increased by the wave motion of the rail. Since the heavy rail is stiffer, wave motion is reduced, thus prolonging the life of those ties that would fail from plate cutting. Independent fastening of the tie plates to the ties still further reduces mechanical wear. Our experience in using screw spikes to attach the tie plates to the ties has been very satisfactory.

Cost per Mile

The following tabulation gives the number of tons of metal per mile of track for four of the rail sections now generally used (disregarding frogs and switches):

90-lb. RA	189.2 gross tons
112-lb. RE	240.7 gross tons
131-lb. RE	291.9 gross tons
152-lb. PS	326.6 gross tons

In changing from one section to another the additional metal per mile of track and its cost at $47 per ton f. o. b. mills are shown in Table II. We estimate that, in changing from the 130- or 131-lb. section to the 152-lb. section, we will pay for the additional cost of the change by savings in labor chargeable to Account 220 alone in from three to four years. In addition we will realize the other savings mentioned above as well as considerably less wear and tear on equipment. In other words, one of the greatest labor saving devices we can use is one of the heavier rail sections. It is my belief that there are many railroads with certain territories in which they can realize the same reduction in track maintenance cost that we have if they adopt the heavier rail sections. The section to be adopted will, of course, be governed by the conditions (traffic, speed, wheel loads, etc.) in the territory under consideration.

Table II—Additional Metal and Cost per Mile When Changing to Heavier Rail Sections

Tonnage	Cost f.o.b. Mills
90-lb. RA to 112-lb. RE—	
51.5 gross tons	$2,420.50
112-lb. RE to 131-lb. RE—	
51.2 gross tons	2,406.40
131-lb. RE to 152-lb. PS—	
34.5 gross tons	1,621.50

IRISH POTATO MOST POPULAR.—The Irish potato is the vegetable most liked and spinach one of those most disliked by dining car patrons of the Texas & Pacific, a survey on vegetable popularity made by that road has revealed. Ranking in the following order were corn, peas, string beans, carrots, broccoli, cauliflower, beets, squash and cabbage.

The poll was conducted over all of the road's lines by stewards who queried more than a thousand diners. J. H. Findley, superintendent of dining car service, said the results are being used by the T. & P. in preparing pleasing menus for its dining car patrons, but not to the "complete exclusion of such 'disreputables' as spinach, cabbage and squash."

Weight Reductions in Passenger Cars

A summary of the statements made by 26 manufacturers of passenger-car equipment, specialties and materials before a forum dealing with future weight-saving possibilities

WITH passenger-car specialties contributing approximately two-thirds of the 120,000-lb. total weight of a modern passenger coach a car builder reviewed the limitations placed on the builder in reducing weight. After acknowledging that the selection of equipment cannot be based on weight alone the builder introduced specific data to show the differences in weights between types of the same specialties. Comparisons made showed air brake equipment ranged in weight from 2,180 to 3,120 lb.; heating systems, 1,200 to 1,660 lb.; air conditioning, including battery, generator, fuel, drive and water, 8,720 to 10,800 lb.; booster inverter and transformers, zero to 800 lb.; insulation, 900 to 4,000 lb.; finished floors, 1,000 to 1,600 lb.; partitions, doors and frames, 1,800 to 3,000 lb.; air diffusers, 60 to 850 lb.; parcel racks, 600 to 1,200 lb.; seats, 3,300 to 4,400 lbs.; and trucks, 32,840 to 38,200 lb. The total weights of these items ranged from 52,600 to 69,630 lb. or a difference of approximately 17,000 lb.

This builder concluded that the average coach weight could be reduced from 120,000 lb. to 103,000 lb., if this 17,000-lb. saving is applied, without deleting any of the necessary equipment or specialties.

Steel

One producer of high-strength low-alloy steels used Section 24d of the Specifications for the Construction of Full and Compartment Railway Post Office Cars as the basis for a comparison of the weight savings effected by steels of higher strength than mild steel and an analysis of the weight savings possible in the car body. The analysis dealt with the effects of yield point, elastic stability, compression strength of columns and deflection requirements on weight saving. A chart was included which showed graphically the relation of yield point to weight saving. The conclusion was that while weight reduction is possible with the use of high-strength steels, no hard and fast percentages can be stated for any given yield point. There are many variables which affect the answer. The chart showed that a yield point of 50,000 lb. per sq. in. can give an optimum saving of 36 per cent in comparison with a mild open-hearth steel having a yield point of 32,000 lb. per sq. in. Experience with steels having a yield point of 50,000 lb. per sq. in. indicated that the actual weight saving in practice, where all the variables are integrated, will run about 25 per cent. Assuming this relation to apply likewise to stainless steel with a yield strength of 100,000 lb. per sq. in., this manufacturer expected the practical saving to be ($^{25}/_{36}$) x 68 per cent or about 47 per cent. It was believed that the saving in weight in the body structure of 45 per cent to 50 per cent in passenger-cars built of high-strength steels in recent years with all the factors of design, construction and steel included, was approaching the limit of weight reduction which the steel in the car body can contribute to the total saving in weight; further reduction must come from the other elements of weight in the car.

A second producer of high-strength steels submitted weight comparisons between cars of carbon steel and those built of a high-strength steel. In coaches and express cars the saving made by using the high-strength steel was estimated to be 26,000 lb. or 25 per cent, and in baggage cars, 16,000 lb. or 12 per cent. In the latter an additional saving of 10,000 lb. in the trucks was made because the reduced weight of the car permitted the use of four-wheel instead of six-wheel trucks.

The efforts which steel producers have made to reduce the weight of axles was reviewed. After showing that axle weights have been increased to improve strength and safety, a tendency to adopt hollow-bored axles was mentioned. The savings in weight per axle when tubular axles are used in place of solid axles was given as varying from approximately 170 lb. for 5-in. by 9-in. axles to 500 lb. for 6½-in. by 12-in. axles. The savings in percentage range from approximately 25 to 42 per cent.

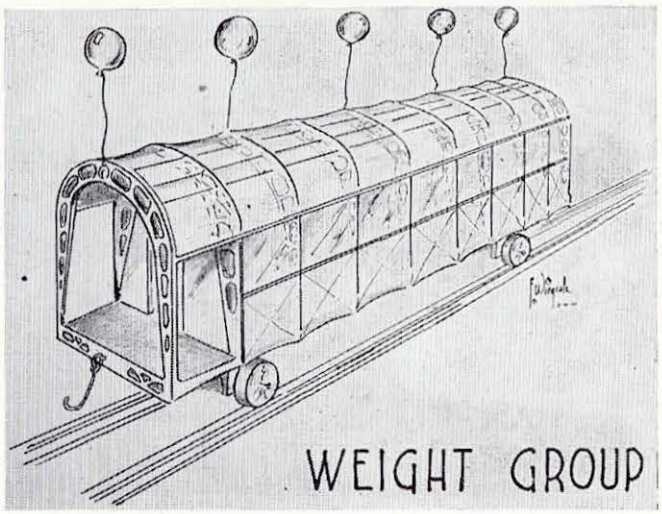
Aluminum Alloys

Products of interest to manufacturers of passenger-car specialties were listed as being aluminum alloy sheets; plates; shapes, both rolled and extruded; forgings; sand, permanent-mold, and die castings; electrical conductors in the form of cable and bus bar; tubing and piping. The mechanical strength of these products varied from 16,000 to 88,000 lb. per sq. in., dependent upon the alloy, product, and process. Included in the paper was a list of 25 aluminum alloys, their physical characteristics and the form (plate, tubing, forgings, etc.) for which they are suitable. Another table listed some of the car specialties in which aluminum alloys have been used and included 22 general classifications of car parts, the alloys

This forum on "Reduction in Weight of Passenger-Car Equipment and Specialties" was presented at sessions of the Railroad Division on December 5, 1946, during the annual meeting of the American Society of Mechanical Engineers at New York. The forum was opened with a paper by Paul W. Kiefer, chief engineer motive power and rolling stock, New York Central, in which he "stated the object". An abstract of Mr. Kiefer's paper appeared on page 961 of the December 7, 1946, issue of the *Railway Age*.

The manufacturers contributing papers, summarized in this issue, were the Aluminum Company of America, E. I. duPont de Nemours & Co., United States Steel Corporation, Bethlehem Steel Company, Pittsburgh Steel Company, American Iron and Steel Institute, Dow Chemical Company, Westinghouse Electric Corporation, Waukesha Motor Company, Frigidaire Division of the General Motors Corporation, Safety Car Heating & Lighting Co., Edison Storage Batery Division of Thomas A. Edison, Inc., Storage Battery Division of the Philco Corporation, K. W. Battery Company, Electric Storage Battery Company, Gould Industrial Division of the National Battery Company, Transportation Seating Division of S. Karpen & Bros., Gustin-Bacon Manufacturing Co., Hyatt Bearings Division of the General Motors Corporation, Timken Roller Bearing Company, Westinghouse Air Brake Company, Vapor Car Heating Company, Buckeye Steel Castings Company, General Steel Castings Corporation, American Steel Foundries and the Edward G. Budd Manufacturing Co.

This cartoon and the ones reproduced on the following pages were shown at the A. S. M. E. forum on passenger-car weight reduction. Drawn by F. G. Wiegratz of the Chicago, Milwaukee, St. Paul & Pacific, each cartoon represents the artist's conception of what a passenger car might look like if one of the many groups interested in passenger-car construction had its own way entirely in the design of the completed product.



used, and the form in which it is furnished. An addendum to the paper set forth the methods used in the welding of aluminum alloys.

As an example of possibilities of further weight reduction it was mentioned that the utility of aluminum alloy forgings has not yet been explored in connection with truck design.

Air-Brake Equipments

Using the type D-22-AR air brake schedule as a basis for making comparisons, specific data on the actual potential weight savings in this equipment was presented. Without the use of weight-saving materials the equipment weighs 2,083 lb. As produced now with wartime restrictions removed it weighs 1,825 lb., a 12 per cent saving, by using aluminum and low-alloy steel in two reservoirs and one bracket. At the request of the customer a further reduction could be made to 1,684 lb., a 20 per cent saving. An additional reduction to 1,287 lb., a 38 per cent saving, could be made by substituting aluminum for cast-iron brake cylinders and slack adjuster bodies. The latter reduction, however entails some precautions, one of which is the requirement for protective measures to avoid rapid wear from flying sand.

Castings

In discussing weight-saving possibilities in castings three ways of approaching the problem without sacrificing safety were considered. These were by reduction of the loads to be carried, by improved design and by the use of better material.

With respect to a reduction of the loads to be carried the platform center sill castings offered little possibility because the principal loads were specified by the A. A. R. If 5½-in. by 10-in. trucks are used instead of 6-in. by 11-in. trucks about 1,500 lb. in the truck and 325 lb. in the cast-steel parts can be saved. Offsetting factors are the load limitations on trucks for higher speeds and the increase in braking power. As an example, the 5½-in. by 10-in. axle, which will carry 40,000 lb. at slow speed, is limited to 34,000 lb. at 85 m. p. h. and 32,000 lb. at 100 m. p. h. Higher speed, requiring an increase in braking power from 157½ to 250 per cent, also results in heavier loads on truck parts.

The better design possibilities for irregular shapes were set forth as an advantage of cast structural parts. The use of an integral body center plate instead of separate body center plates with a saving of 160 lb. was given as an example of weight saving by design changes.

In the trucks a reduction from a nine-foot wheel base to 8 ft. 6 in. would save 90 lb. in the truck frame, about the same amount in the equalizers, and some saving in the brake equipment. The use of the beam type brake simplifies truck frame design and saves about 100 lb.

Installation of 13⅞-in. roller-bearing boxes instead of 15-in. boxes reduces the frame weight by 30 lb., and a redesigned bolster saves 50 lb.

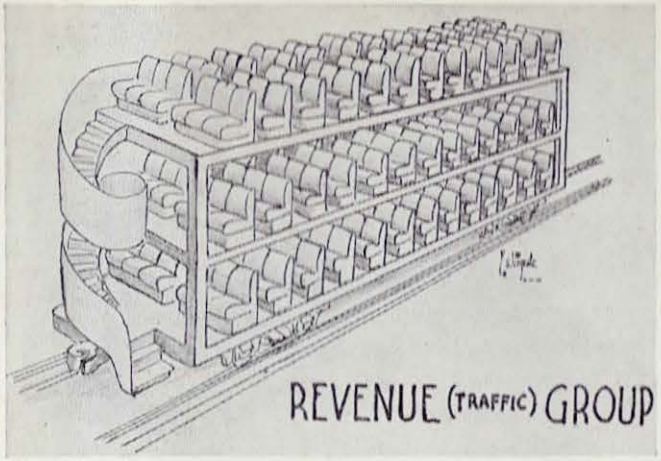
The more extensive use of low-carbon nickel-alloy steel castings reduces casting weights about ten per cent in comparison with Grade A steel. In regards to better materials it was pointed out that the necessity of casting pads and brackets for the attachment of other parts makes it impractical to reduce all sections of castings and take full advantage of the greater strength of better materials.

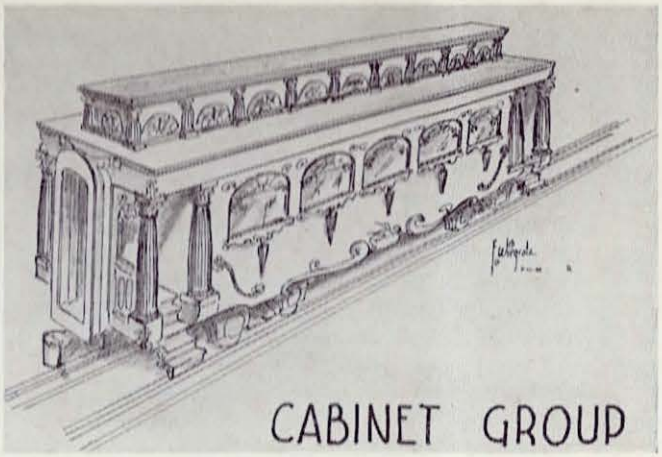
Magnesium

The properties and availability of magnesium were discussed in order to show its suitability for passenger-car applications. Ingot magnesium was said to be the most available metal in the world. Factors tending to offset the higher initial cost of semi-fabricated magnesium parts were simplification of design because its lower density permits the use of thicker sections and the avoidance of complex ribbing and bracing and its machinability. Recently developed arc-welding and hot-forming techniques were mentioned as giving the metal advantages over competitive materials.

The use of magnesium castings in aircraft landing wheels and engine parts during the war and in cast wheels for trucks, buses and heavy ordnance equipment in Europe before the war were cited to show the metal's suitability for applications where shock and vibration are involved. In Europe, tests were also made of cast-magnesium wheel centers for railway equipment because of its sound absorption and vibration-damping characteristics but they were not considered adaptable for use with rim-type brake shoes.

With processes for permanent mold and pressure die castings worked out it was believed that magnesium could save weight in the many small hardware parts and fittings in a passenger car. Its use experimentally in chairs for buses and railway cars was considered as a start in a field where its properties could be utilized to save weight. Attention was called to the co-operative proj-





ect set up at Purdue University to work with the A. A. R. to demonstrate serviceability and obtain A. A. R. approval for the use of magnesium in various structural forms in railway equipments.

Foundation Brake Rigging

Comparisons were made between the weights of foundation brake riggings on cars of the 1920's and early 30's and riggings on cars of 1946 design. The reduction in weight in the brake rigging of sleeping cars, when adjusted to compensate for the difference in braking ratios, was shown to be 3,100 lb., or approximately 36 per cent, as against an 18 per cent reduction in the weight of the complete car. On the same basis the weight of the brake rigging for 1946 coaches was estimated to be 1,300 lb., or almost 20 per cent, less in comparison with a coach of the pre-streamline days having the same light weight at the rail.

These data were introduced to show the contribution made to weight saving by the improvements in foundation brake rigging. The three most important factors influencing the weight saving were listed as the truck-mounted brake cylinder, the utilization of high-tensile materials and close attention to details of design.

Plastics

Two plastics expected to be of increasing interest to the designers and builders of railroad cars were a low-density core material now being used in the aircraft industry for floors, partitions, and doors in sandwich-type construction, and an acrylic sheeting, which is replacing glass in a number of interior applications where lightness of weight and resistance to shock and impact are important. An example of the strength to weight efficiency of the low-density core material was given by making a comparison of a composite panel with a plate of steel. The composite panel, about 1.08 in. thick, was made of the core material and two faces, each 0.030 in. thick, of spun glass impregnated with a heat-setting resin. The steel plate, 0.245 in. thick, and having the same flexural rigidity as that of the panel weighed 7.63 times as much as the panel. When the two were set up as simple beams and loaded in the center, the steel plate carried 655 lb. before taking on a permanent set, while the composite panel carried 698 lb. The low weight of this core material, the structural strength of panels in which it is used as a core, and its good thermal insulating character were expected to be important factors in the choice of this product for use in railroad cars.

The acrylic resin has a specific gravity of 1.20. In the form of sheets, ranging from colorless crystal through a wide range of colors and with smooth and patterned finishes, it was believed to have interesting possibilities in the interior design of passenger cars. Engineers had worked out attractive effects with indirect lighting and edge lighting and applications where beauty, resistance to impact, and lightness in weight are important were anticipated.

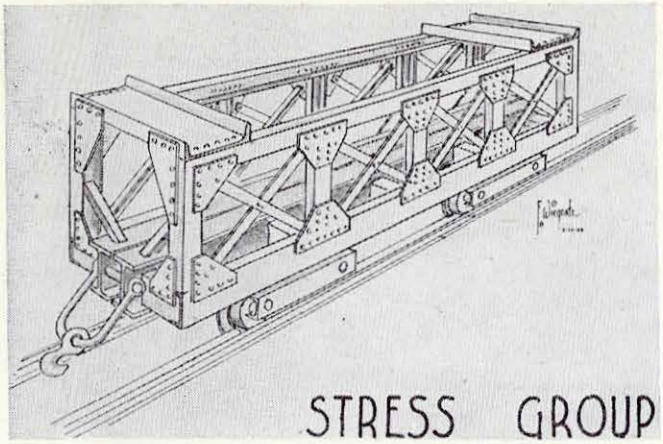
Roller Bearings

One roller-bearing manufacturer believed the reduction in weight of roller bearings and roller-bearing boxes to be dependent upon a further reduction in the truck-frame opening and the fabrication of boxes from rolled shapes and plate. It was said that an available bearing and box, weighing 35 to 40 per cent less than the bearing and box for the wide frame opening now used, would fit into the present standard friction-bearing frame opening. The weight saving was given as approximately 1,200 lb. per car for a 5½-in. by 10-in. axle. Citing the lack of passenger-car journal-box standards as the reason for the limited experience with the fabrication of boxes it was felt that the development of boxes from rolled plate and formed shapes may hold possibilities for further weight reduction. Under the present condition of frame opening the sections in journal-boxes are determined largely by steel foundry practices and it was thought that thinner sections could be used.

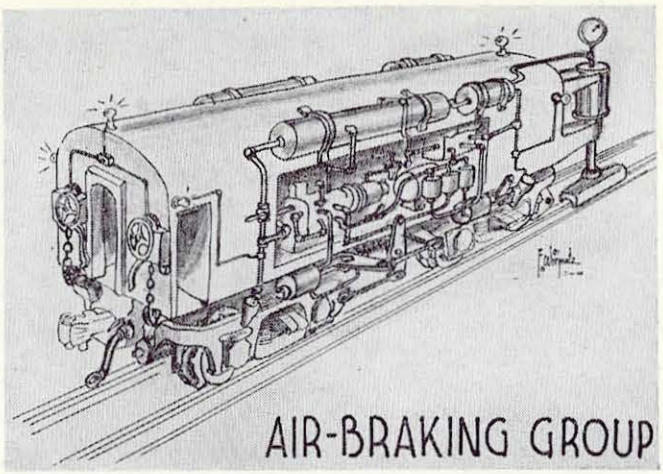
Another manufacturer took the same position with respect to roller-bearing journal-box sizes and questioned the need for making the boxes any larger than required for adequately housing and serving the bearing. Lighter-weight materials for boxes were believed to offer too many objections to make their use feasible. Better design of the boxes to eliminate excess material, such as the use of properly placed ribs that would reduce weight with no sacrifice in strength of stiffness, was another approach suggested. The greatest savings were believed to depend on allowing the specialty suppliers to make reductions in the physical proportions that are practical and do not compromise performance and by the standardization of the application requirements.

Couplers

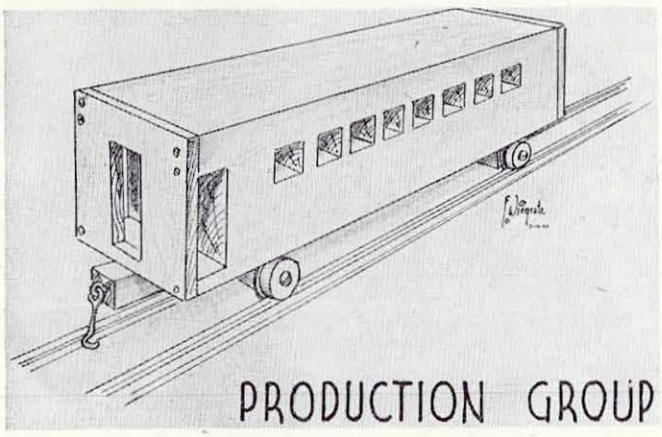
Because the fundamentals of design for tightlock couplers established requirements exceeding those for Type E couplers no direct comparison of the weights of the two types was considered logical, as the new coupler features added weight. A general comparison of the two couplers, as used on sleeping cars, estimated the weight of the tightlock coupler of high-strength steel to be 2,270 lb. and that of the type E coupler to be 2,160 lb. when made of Grade B steel. In considering these figures emphasis was given to the fact that the tightlock coupler is designed 20 to 25 per cent stronger than the Type E coupler and also, because of its interlocking arrangement, no additional anti-telescoping arrangement is needed. It was suggested that the tightlock coupler permitted a reduction in the diaphragm buffer capacity and a corresponding saving in weight



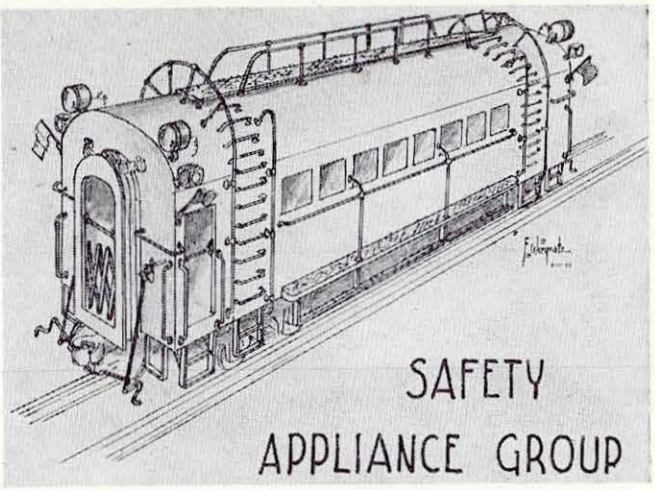
STRESS GROUP



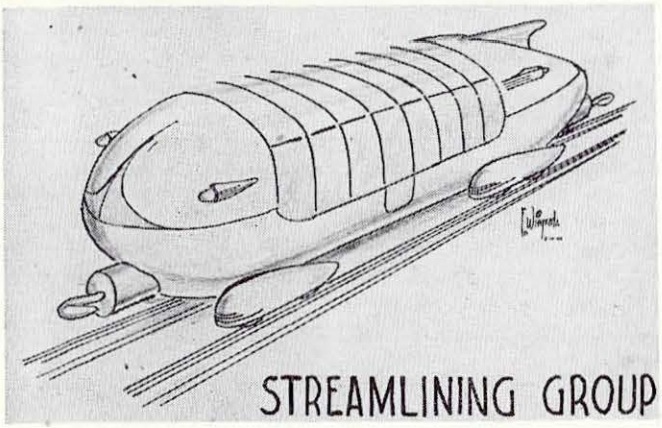
AIR-BRAKING GROUP



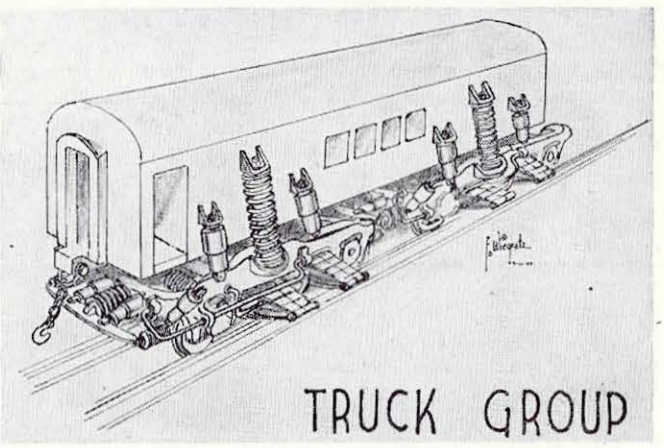
PRODUCTION GROUP



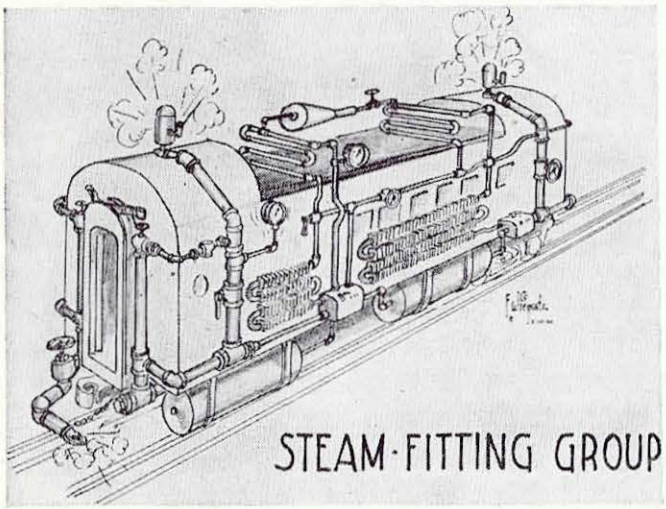
SAFETY APPLIANCE GROUP



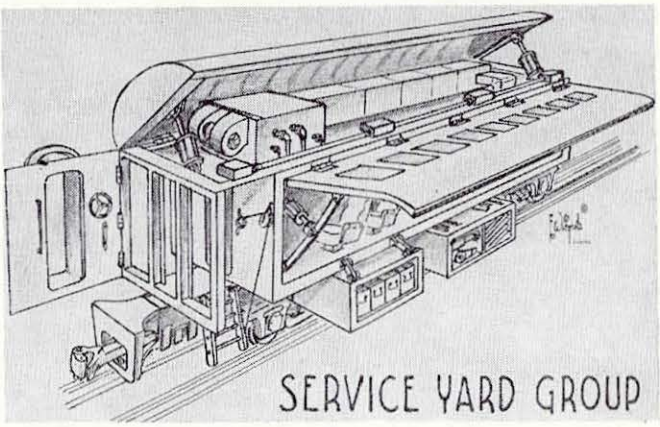
STREAMLINING GROUP



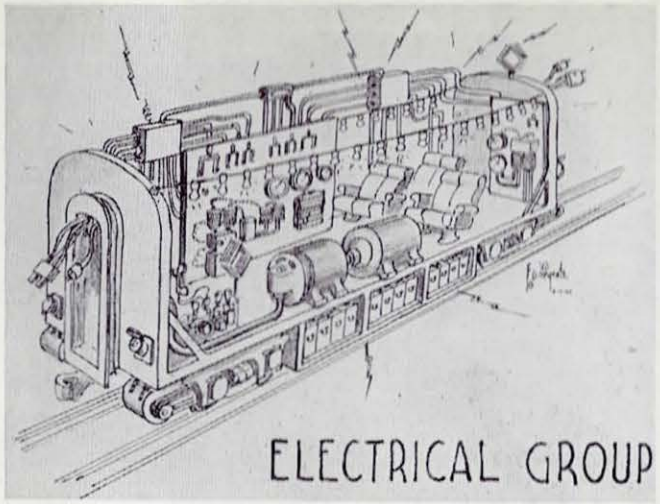
TRUCK GROUP

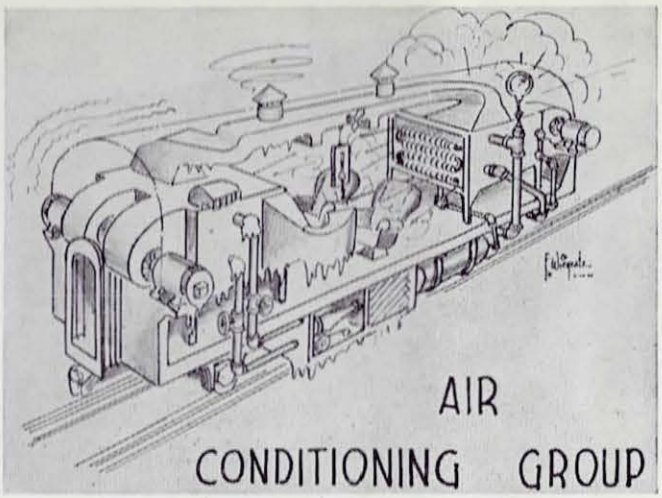


STEAM-FITTING GROUP



SERVICE YARD GROUP





because the latter had to be designed to cushion the free slack between couplers when tightlock couplers were not used.

Insulation

A modern light-weight car was said to contain, in round figures, approximately 3,000 sq. ft. of insulation at a thickness of 3 in. The density of most insulations used in the past few years has been 2 to 2½ lb. per cu. ft. and prior to that even two and three times that weight. This does not include the weight of heavy facing materials which are used in most fabrications to hold the product together and perform no other function.

The weight per square foot of unfaced insulation, 3-in. thick, of 2 lb. density is .50 lb. When the same insulation is faced both sides with, as an example, reinforced asbestos paper, the weight is increased to .62 lb. per sq. ft. Therefore, the 3,000 sq. ft. necessary to insulate a car will weigh about 1,860 lb.

An insulation made by one manufacturer requires no facing materials and is produced at a density of one pound per cubic foot at a thickness of three inches, which is equivalent to .25 lb. per sq. ft. Three thousand square feet of this 3-in. insulation will weigh 750 lb. compared to 1,860 lb. for the 2-lb. density material faced both sides with reinforced asbestos paper. The savings thus effected amounts to 1,110 lb.

Air Conditioning

The policy of one manufacturer of air-conditioning equipment of the electromechanical type has been that of making weight reductions only if reliability and efficiency are not affected adversely. For these reasons it has continued to make relatively slow-speed compressors rather than use compressors of higher speed and less weight. This company did separate the condenser from the compressor unit with a weight saving of 100 lb. but only after the basic operating requirements were met.

A supplier of steam-ejector air-conditioning equipment showed that their attempt to reduce weight ten years ago by using aluminum was not entirely satisfactory. Recently, this builder has been advised by an aluminum manufacturer that certain parts could be safely made of aluminum and the resulting saving would be approximately 575 lb. Also, certain items might be redesigned to save 75 lb. and a further saving of 45 lb. might be made by using stainless-steel casing sheets in place of silicon copper. The same manufacturer states that recent developments in compressor design have permitted increases in speed resulting in a weight saving of 225 lb. on equipment of eight tons capacity. The separation of the compressor from the condenser has accomplished a 150-lb. saving.

Seats

Passenger comfort has required the addition of items such as ash trays, center arms, adjustable footrests, deeper cushions and more luxurious backs, all of which add weight to the seat and have resulted in a seat weighing approximately 185 lb. It was believed that 10 to 15 per cent of this weight can be saved by the greater use of metal in place of wood in the framing, by selecting the covering material with care, by designing the seats with smaller end panels and by the employment of lighter and stronger aluminum and steel alloys.

Steam-Heating Equipment

The actual weight reductions submitted by one producer of steam-heating equipment showed a reduction from 3,058.87 lb. in 1925 to 1,331.97 lb. in 1945 based on layouts for a typical coach. This reduction of 1,726.9 lb., or 56 per cent, was compared to the total reduction of nine per cent in dead weight of a coach in the same period and was offered as a reason for the limited extent to which the weight of the heating equipment can be further reduced.

One example of weight saving in post-war equipment was the combining into one regulator the functions of three separate devices formerly used, a change that produced a 50 per cent saving in the weight of the regulator alone. The introduction of new alloys and even plastics was believed to hold possibilities for continued research in the improvement of weight advantages.

Electrical Equipment

An analysis of heating, cooling and electrical equipment showed that the weights varied from 11.5 to 16.1 per cent of the total car weight, the lower figure applying to a car on which a. c. electric power is used at relatively high voltage. If the source of power is removed from the car and located at the head end of the train (steam-turbine generator on the locomotive tender or a Diesel-generator set on a leading car) the weight is reduced to nine per cent of the total car weight. These figures are based on a total car weight of 100,000 lb.

In rotating electrical parts little hope for a substantial weight saving was believed possible. More opportunity for weight economy in equipment structures and refrigerant circuits was anticipated by the use of high-strength steels and lightweight alloys.

A builder of engine-generator sets stated that pre-war designs for mobile service were designed on the basis of 200 lb. per kilowatt, approximately 50 per cent less in weight than industrial equipment. During the war this manu-

(*Continued on page 1088*)

Frisco's New Officers Named

Clark Hungerford

FRANK A. THOMPSON, trustee of the St. Louis-San Francisco, has been elected chairman of the board of the reorganized company, and Clark Hungerford, vice-president, Operations and Maintenance department of the Association of American Railroads, has been elected president. The new officers assume their positions January 1, when the company again takes control of the property.

The reorganization of the road ends a 14-year period of bankruptcy proceedings which began on November 1, 1932, when the precipitate traffic declines of the first years of the depression forced the road into receivership. On October 1 of the following year, the receivership was terminated and the road was placed in trusteeship under the provisions of the amended federal Bankruptcy Act, with J. M. Kurn, former president, and John G. Lonsdale, former receiver, named as trustees. On July 30, 1943, following the death of Mr. Lonsdale, Mr. Thompson, then counsel for the trustees, was appointed a co-trustee to serve with Mr. Kurn. Upon Mr. Kurn's resignation, forced by ill-health, on January 1, 1945, Mr. Thompson became sole trustee.

Under the terms of the reorganization plan, as approved by Federal District Judge George H. Moore, in St. Louis, Mo., the road will be operated for five years under court supervision. The total capitalization of the company as reorganized is approximately $247 million, compared with $480 million previously. Claims of the former stockholders and unsecured creditors are wiped out by the reorganization.

The Frisco operates 4,645 mi. of line in Missouri, Kansas, Oklahoma, Texas, Arkansas, Mississippi, Alabama and Florida. It has main lines extending from St. Louis Mo., southwesterly through Springfield, Monett and Tulsa, Okla., to Oklahoma City. A secondary line continues into western Texas. Another main line extends from Kansas City, Mo., through Fort Scott, Kan.; Springfield, where it crosses the St. Louis-Oklahoma line; Memphis, Tenn.; and Amory, Miss., to Birmingham, Ala. From Fort Scott there is another main stem running to Dallas, Tex., and Fort Worth via Tulsa, while a fourth links St. Louis and Memphis. Secondary main lines run from Monett to Paris, Tex., and from Monett to Wichita, Kan., and Ellsworth; from Tulsa to Enid, Okla.; and from Amory to Pensacola, Fla.

Like most other southwestern roads, the Frisco's revenues have been subject to violent fluctuations during the past 20 years. In their earlier years, all of these lines were dependent in large part upon traffic derived from products of agriculture, including also the general classification of "animals and products", and forest products. In addition, the Frisco has, at times, had substantial traffic volumes of crude petroleum.

During the Twenties and Thirties much of the traffic in agricultural products and most of that in livestock, which was all vulnerable to highway competition, was lost. In addition, the depressed business conditions of the Thirties and the prolonged drought in some of the states served by the road, in certain of these years, greatly reduced the amount of general freight moving into the territory. The Frisco's traffic in forest products, like that of other lines in the area, has been subject to an almost continuous decline for many years because of the depletion of forests, while its traffic in crude petroleum has never been of more than a temporary nature, which boomed during periods in which oil fields were being developed and declined when pipe lines had been laid to transport the oil.

Frank A. Thompson

When the conditions outlined above are considered, the reasons for the Frisco's financial difficulties become clear. For the future, the outlook is considerably brighter. The major diversion of railway traffic to the highway has now been effected, and it seems likely that in the future the distribution of the traffic will follow a fairly definite pattern. Recent years have seen a vast industrial development in both the South and the

TABLE I
Revenue and Expense Data
Summary of Operating Revenues, Expenses and Net Operating Revenues

Year	Freight revenue (000's)	Passenger revenue (000's)	Operating revenue (000's)	Operating expenses (000's)	Operating ratio	Net Operating revenue (000's)
1916	$36,555	$13,113	$53,119	$35,646	67.11	$17,473
1917	39,421	16,139	59,676	39,610	66.38	20,065
1918	47,161	20,976	72,475	57,807	79.76	14,668
1919	53,558	23,599	82,202	64,069	77.94	18,133
1920	66,338	26,341	98,723	89,886	91.05	8,836
1921	59,088	21,360	86,292	64,385	74.61	21,906
1922	57,578	19,121	83,008	62,631	75.45	20,376
1923	62,498	20,597	89,633	65,934	73.56	23,698
1924	65,528	18,545	90,509	64,092	70.81	26,417
1925	70,797	17,296	94,715	65,928	69.61	28,786
1926	71,681	15,847	94,406	65,921	69.83	28,484
1927	68,213	14,353	89,259	62,263	69.76	26,996
1928	67,281	11,781	85,782	59,783	69.69	25,999
1929	70,376	10,902	89,109	62,847	70.53	26,261
1930	59,491	8,341	74,208	52,943	71.34	21,265
1931	46,758	5,389	57,112	42,527	74.46	14,585
1932	35,717	3,151	42,672	34,651	81.20	8,020
1933	34,932	2,340	40,693	33,822	83.11	6,871
1934	35,555	2,497	41,851	35,913	85.81	5,938
1935	35,834	2,679	42,425	37,906	89.35	4,518
1936	42,298	3,451	50,182	41,170	82.04	9,012
1937	42,909	3,785	51,218	43,194	84.33	8,024
1938	37,875	3,320	45,107	39,805	88.25	5,302
1939	40,400	3,222	47,716	40,023	83.88	7,693
1940	40,741	3,174	48,180	39,140	81.24	9,040
1941	51,998	4,924	61,835	45,216	73.12	16,618
1942	70,354	13,317	90,079	57,003	63.28	33,076
1943	81,551	23,180	112,961	73,703	65.25	39,258
1944	87,734	24,641	121,244	82,624	68.15	38,619
1945	85,512	21,805	116,844	86,219	73.79	30,625

TABLE II

COMPOSITION OF FREIGHT TRAFFIC — 1945

Commodities	Revenue	Per cent of total
Products of agriculture	$ 16,178,991	18.92
Animals and products	4,121,709	4.82
Products of mines	12,339,473	14.43
Products of forests	3,292,237	3.85
Manufactures & miscellaneous	44,449,469	51.98
Total carload traffic	80,381,879	94.00
All l.c.l. traffic	5,130,758	6.00
Total all freight traffic	$ 85,512,637	100.00

Southwest, so that the road now has available a more diversified traffic originating in its own territory, than it has ever had before.

The trend of revenues and expenses from 1916 through 1945 is shown in Table I. The composition of the freight traffic as it existed in 1945 is shown in Table II.

Improvement Program

During the reorganization period the road has been thoroughly rehabilitated and improved physically. One of the most important projects undertaken was the construction of 7.2 mi. of new line between Jerome, Mo., and Dixon, on the main line from St. Louis to Oklahoma. This revision eliminated 8.5 miles of line on which the maximum grade was 2.30 per cent, compared with 1.27 per cent on the new line.

During the 10 years ended December 31, 1945, the Frisco acquired 46 Diesel-electric switching locomotives and 36 new steam locomotives, and rebuilt 37 other steam locomotives. More than 800 mi. of new 112-lb. rail, mostly replacing rail of lighter section, was laid in this period, and more than 5,300 mi. of track was reballasted. Automatic block signals were installed on 108.9 mi. of line, and centralized traffic control on another 110.2 mi. of road. Five interlocking plants were built.

Another major project successfully carried out during the reorganization period was the formation of the Frisco Transportation Company for the purpose of establishing and operating coordinated motor truck and bus service for the transportation of mail, express, freight and passengers between points served by the railroad. At the close of 1945, Transportation operated approximately 4,400 route miles.

Mr. Thompson's Career

Mr. Thompson was born at St. Louis on October 4, 1880, and was educated in the public schools of that city and at the University of Michigan, from which he received a law degree in 1904. Upon completion of his schooling, Mr. Thompson was admitted to the Missouri bar and began the practice of law in St. Louis. Shortly after the Frisco was placed in trusteeship, Mr. Thompson became special counsel for the trustees. On July 30, 1943, he was made co-trustee, and on January 1, 1945, he became sole trustee. Mr. Thompson is a partner in the law firm of Thompson, Mitchell, Thompson, & Young. He is a director of the Industrial Bank & Trust Co. of St. Louis, the Terminal Railroad Association of St. Louis, and the Kansas City Terminal. He is president of the St. Louis, San Francisco & Texas and the Birmingham (Ala.) Belt, both Frisco subsidiaries.

Hungerford an Operating Man

Mr. Hungerford was born in Jackson, Tenn., on December 22, 1899. He received his higher education at Princeton University, being graduated from that institution in 1922 with the degree of civil engineer. He entered railway service in October, 1918, as a transitman with the Southern, at Charlotte, N. C., subsequently serving in this capacity at numerous points on the road. In December, 1922, he became a bridge inspector at Charlotte, and in April, 1924, he was advanced to engineering draftsman there. Three months later he was promoted to assistant engineer at Knoxville, Tenn. Mr. Hungerford entered the operating department on March 16, 1925, as assistant trainmaster at Asheville, N. C., and one year later was advanced to trainmaster at Macon, Ga. He was promoted to superintendent of the Mobile division, at Selma, Ala., on October 1, 1927, subsequently serving in that capacity at Macon, Alexandria, Va., and Birmingham, Ala. On August 1, 1939, Mr. Hungerford was made general manager, Western Lines, at Cincinnati, Ohio. On March 1, 1946, he was elected vice-president, Operations and Maintenance department, Association of American Railroads.

Mr. Hungerford was a member of the board of managers of the Cincinnati Union Terminal from 1939 until he went with the A. A. R. He is a member of the Cincinnati Traffic Club, The Mobile (Ala.) Traffic & Transportation Club, and the Birmingham Traffic & Transportation Club. He served the Cincinnati-Hamilton County War Chest as district vice-chairman in 1944 and as chairman in 1945.

Weight Reductions in Passenger Cars

(*Continued from page 1086*)

facturer made sets varying from 20 to 200 lb. per kilowatt, depending on the type of service, life expectancy and reliability.

Batteries

The battery manufacturers commenting on weight savings were all essentially of the same opinion in that storage batteries have about reached the limit of weight reduction in the active material and electrolyte without producing a battery of shorter life requiring more maintenance. Some reduction in weight may be possible in the containers, covers, trays, connectors, etc., but these parts produce the smallest percentage of the total weight. It was suggested that the battery compartment, weighing from 700 to 1,000 lb., was a possible source of saving. The use of higher voltages (64 to 110 instead of 32) was also suggested because smaller conductors in the wiring and lighter motors and generators might be used.

All of the battery suppliers pointed out that batteries now have a weight per unit of power from one-third to one-half that of batteries of approximately 20 years ago.

A manufacturer of nickel-iron-alkaline batteries listed the weights and ratings of batteries of this type and claimed that a comparison with batteries of other construction would indicate that, depending upon the installed capacity, the saving in weight may be from 1,500 to 2,000 lb. per car.

CANADA SETS UP TRANSPORTATION ECONOMICS BUREAU.—Creation in Canada of a Bureau of Transportation Economics to unify under the Board of Transport Commissioners the economic functions of that body and of the Air Transport Board, has been announced. The duties of the Air Development Branch of the Department of Reconstruction and Supply will also be taken over by the new Bureau.

The Board of Transport Commissioners is responsible for the regulation of railway transportation, certain phases of water transportation, and of communication companies. The Air Transport Board is responsible for the development and regulation of air transport. By the unification of all transportation economics under the one head it will be possible to maintain at all times an over-all picture of all phases of transportation in the Dominion, it was explained.

Political Meddling Alarms Union Leader

David B. Robertson sees a national opportunity to advance labor-management relations by abjuring insidious government controls and returning to the effective and fair processes of the free market place

This article consists of excerpts from an address by the president of the Brotherhood of Locomotive Firemen and Enginemen, made December 12 at a meeting of the Central Railway Club of Buffalo, N. Y.

WE have reached a point today in our national affairs when it is imperative that labor and management determine as objectively as possible—with mutual understanding—the principles governing our conduct, our interests, and our purposes.

We cannot afford to multiply blunders. The heat of passion and agitation must be cooled, and our course set logically, sensibly, realistically and definitely. This process is just as true for labor and management as it is for the nation and its government if it is to be enlightened and enduring. The approach to understanding is our national opportunity. The goal is the return to a balanced economy and the establishment of better and more equalized relationships between labor and management.

I cannot represent the membership of the Brotherhood of Locomotive Firemen and Enginemen honestly and properly if I do not conduct my office in such manner as to successfully care for and to promote what we sincerely believe to be our just and fair rights and interests. It is essential that we prosecute our purposes vigorously and effectively, but today it is not necessary to pursue the course militantly with warlike forces, with a succession of chips on the shoulder. In times past when the employer refused us recognition, when inadequate law or no law governed the settlement of our disputes, and when prejudice against our workers in attaining their rights and interests was manifest in industry and government, it was imperative that labor be militant continuously in order that the brotherhood, the representative of labor's own choosing, could exist. The people, through large majorities, inevitably supported our position by legislation and its administration, and you may definitely be assured that they will continue to support and defend the legitimate right to organize and to bargain collectively regardless of what political party is in power.

However, during the past several years there has been a suspension of collective bargaining, and a substitution of political bargaining as government became the master of the entire economy and industry became its servant, in order to prosecute the war to a successful conclusion.

The price of victory was a greater incentive to us than the maintenance of the freedom of labor. But the victory in war has come and gone. The months since V-J Day are rolling into years. But still the control by government has not definitely been relinquished. The delays brought about by temporizing with questionable national forces are weakening efforts towards a return to constructive peacetime processes.

Government at times during emergencies has taken over industries. At times it has shown a gross ineptitude in the process of control. There is manifestly no way by which dependable economic responsibility can be accepted by administrative government.

Subversive Infiltration

American leadership must now speak out with vigor and certainty. Merchants of foreign propaganda who have no place in our body politic, who secretly insinuate themselves in our midst, who are notoriously intent on inciting revolution in our way of life, should be known for what they are, and summarily dealt with. Whether they be Communist or Fascist is immaterial. They are here; they would destroy, and we know it. They have infiltrated our government, our schools, our social and economic life. They would bring about by trickery and chicanery their own pattern of world control.

If it fits their master plan they will apparently be on our side one day, then slowly and insidiously compromise us the next, and leave us in disillusionment and despair. They will exploit our sincerity, our constructive endeavors to develop and evolve more effective means of living and bargaining together peacefully, and they will do it with quietness and skill, and with the benefit of wide experience.

Any government, labor, business, or social leader who accepts their solicitations, their sinister advances, their direct or indirect assistance, is either mentally twisted or completely unrealistic. If he thinks by such a course he can successfully and honestly lead his constituency or rank and file, he is asking for his own destruction.

The day of political bargaining for the rights and interests of labor has to end. It should have passed with the termination of hostilities, not depending on the officially announced termination of war. Government coercion and economic irresponsibility have no rightful place in peace-time collective bargaining at our conference table. Let us return to processes under law, not under government by men. Government in this country still is our servant and we want to be sure it continues in that relationship.

Somehow an erroneous impression seems to be prevalent that social justice can be secured only through government intervention in industrial disputes. The effect has been a tendency to substitute what might be called government interference for collective bargaining, with attendant confusion and complications in the settlement of major problems.

Only the Free Economy Works

In almost fifty years of my experience as a member of the Brotherhood of Locomotive Firemen and Enginemen, I have always tried to attack problems constructively and with what wisdom I had available. We have progressed to the satisfaction of our members within the framework of sound procedure in our relationship with railroads and government. This has been based on the principle of the automatically working free American market. There are 140 million Americans in that market, with a vast amount of moving intelligence, and the "know how" to get things done. From among these millions the scientific, economic and social creators are ever solidly and strongly pushing ahead our great national economy. I have complete confidence in this process and the people who are responsible for it.

This free human energy with God-given individual initiative can solve economic and social problems, can be relied on to grant labor better and better working conditions and more and more real wages. It has done so in the past and will do so in the future, unless we are short-sighted and foolish enough to yield to the deadening hand of an intellectual bureaucracy, a statism of self-appointed gods of the market place, who have no mandate or even an expression from the people of what the people think is for their own best good.

It is freedom that makes the process of the market place automatically workable. Yet we have many, in government and outside, who earnestly believe that they have super-intelligence sufficient to control markets by which people live, through a system of absolute state power. These are idealists, the *un*realists, who often are taken for a ride by infiltrated foreign statists with their malevolent designs to wreck our American economy. It is not logical; it is not common sense, for it ends in destruction.

Government cannot create a sound economic and social life. It can only set up police forces, investigations, committees and bureaus. It is intended to restrict, restrain, stop, arrest, and prevent the breaking of contracts and the fraud, violence, predatory and monopolistic abuses of the people. Only the free people can create for their own good. Each individual knows what he wants, knows his own condition, and they are all different.

Relations Improving

Long before I was engaged in helping to draft the Railway Labor Act in 1926, efforts were made by railroad labor and management through trial and error to promote and establish more efficient and effective means for collective bargaining. Some of the answers were not found then and some have been found since. There are doubtless others which experience will disclose.

Labor and management relations must constantly improve with time, but it takes time to work toward perfection. New conditions, new needs, new requirements arise which demand additions and betterments in the machinery. We are dealing with the humanities, which never can be an exact science. The subject and its implications are too variable. It is wholesome and refreshing to know that there is no fixed end to human wants. They are and should be unlimited within the concept of an economy of abundance.

When a person once said to me, "When is labor going to stop demanding?", the answer I gave was, "I hope, never!" No one with ambition and an American desire to improve his status in life can answer otherwise and be honest. We curb our desires, however, to the level of the practical, the feasible. We apply our own restraining forces measured by what is sound and enduring. The laws of nature compel us to observe how far we may go. Get-rich-quick formulas or dishonesty, as the experienced have discovered, cannot pay out. That is a losing game. There are no eventual gains in following that line.

I have found that ever-improving methods of collective bargaining are the most sensible and the soundest answer to the question of settling our demands. Both sides of the conference table must be tough, and they had better be intellectually honest and experienced, for advantages and disadvantages spring out of such material.

As labor fought in the past for recognition of its rights and interests, wise leaders have desired only equality with management in their negotiations, mediations, and settlement of disputes. They have desired only equality before the law. In the course of our upward drive toward the goal of equality, it was imperative that we enter encounters without gloves, for we sometimes found brass knuckles used by the other side. Management had the preponderance of court decisions and judicial and legal processes. It has been but a few years since much of this has been changed and amended. This essential progress must be retained and stabilized, and the methods improved, but not in such manner as to throw the relationship of management and labor off a proper balance.

Equality Before the Law

Management and labor, and the legal instrumentalities which are legislated and administered for them, must alhere, as a national policy, to the principle of equality before the law. This is a principle to which we must all cling tenaciously. We have fought wars, we have suffered and died to preserve this character of our nation, and the fight to maintain it has only begun.

In spite of political and financial and human uncertainties we must carry on to settle our differences. The score of accords which the public knows little about is far greater than the discords, but there still are serious disputes which require settlement. We must take them in stride for the good of industry and its workers.

Perhaps the public's interest has never been more greatly aroused in labor-management problems than it is today. Naturally they have entered into the arena of politics, or propaganda—crackpot and otherwise. This is all the more reason for us to keep our feet firmly on the ground with no emotionalism or any other kind of "ism" except Americanism. We must not abide the spreading of seeds of bitterness or hatred or fear.

Settlements Can Be Made

I have enough self-assurance to know that wages and working conditions—and there are some very serious questions ahead for us to settle regarding them—can be amicably and fairly adjusted, within the design of our accustomed relations. Within the railroad industry, with few exceptions, we are friends, although there may be some unenlightened assumptions that we are antagonistic. We sit on opposite sides, it is true, and we represent different points of view, for our interests are then in conflict, but there is a well-seasoned respect for each other—again I say, with few exceptions.

At least I believe that labor and management in the railroad industry have reached a point of established equality in dealing with each other.

Human machinery wears out or cracks at times and the gears jam and there is trouble, the same as with any kind of physical machinery. The difference is, locomotives and cars and tracks and roundhouses have no propaganda or newspapers or statistics or lawyers or presidents or general managers or labor representatives. They just do what they are designed to do and don't answer back, but now and again they get out of order and stop working. They just help labor and management get the freight and passengers through and as they are improved through advanced technology they bring down the costs of operation, assisting us in producing more transportation per man and thereby helping to increase the real wages of both of us, and make rates to the public cheaper and give a little more to the owner. It is ridiculous to assume that there can be any differences between ourselves and this physical plant-capitalist. Of course, the adjustments in employment incident to technological improvements require at all times the safeguarding of labor's interest in its jobs and welfare.

Much trouble in labor-management relations could be avoided long before an issue reaches a critical stage. Some wise railroad managements are highly organized to anticipate trouble, as for example, in the introduction of mechanical innovations which may affect their labor relations. They have enough foresight to provide agreements even at the drawing board. When the new machine appears it becomes a good earner from the first minute of its operation, because employees gear in their satisfied labor accordingly. This is good management, and should be accepted as such by those responsible for management.

The success or failure of an industry

is dependent on fair and sound labor relations. Railroad labor wants no more than its just share of its product. It is as much a part of the product as management and capital. In a sense we are all laborers together for the industry. Our loyalty flows to the industry. This is axiomatic and traditional on railroads. There is no other employed loyalty that transcends it.

The workman is human, with all the impulses and feelings of management and owner, and more so. He is just as ambitious and aspiring; he wants the good life, but he knows it is not practicable unless he earns the right to it. Nature designed society for the benefit and welfare of the workingman as well as everyone else. The profound lack of understanding between management and labor in the 'Twenties must not be repeated in the future.

We have recently come out of a dark period in our national life. Both sides joined forces for the survival of our country. Labor was compelled to yield its collective bargaining to political bargaining in the necessities of victory. It was a strange and unaccustomed territory. At times we were torn between our obligations to protect our men and our obligations to our country. Nevertheless, the nation at war was properly given the priority.

We are now at peace even though the treaties have not been consummated. We will sustain the government to the limit in maintaining that peace. A new day approaches; a revitalized collective bargaining between management and labor brightly shines ahead of us. That relationship should be reborn in mutual confidence and respect. Railway labor has an important obligation to the future of the industry, which is equal to that of management.

I look toward that new day with realistic optimism. We know that there are many difficulties ahead of us, but there are unquestioned reasons for us to believe that America has—that we have—the qualities of endurance, of fairness, of justice, of integrity and character which will again place our great national economy on the high road of peace and increasing prosperity for all.

West Coast Employees Fight Crosser Act

THE Crosser law, described by its sponsors as a means to give railroad employees more "social security," is an "actuarial will-o'-the-wisp, fathered and nurtured by the railroad brotherhoods, and in which neither employer nor employee had a voice," say circulars being distributed among railroad employees in California in a campaign to enlist support for that measure's repeal. Approximately 1,400 signatures have been obtained already to petitions to California congressmen asking their help in the repeal effort, according to Edouard E. Escalle, of 511 Hillcrest boulevard, Millbrae, Cal., a Southern Pacific general office employee who has been active in the campaign.

That these steps to bring about repeal of the Crosser law have been somewhat disturbing to brotherhood leaders is indicated by another circular, bearing the signatures of officers of the Brotherhood of Railway Clerks, in which employees are told that the petitions were prepared by "stooges" for the railroad.

Significant parts of the two circulars follow, the first being one entitled, Wake Up, Railroad Workers, and the second, addressed to Southern Pacific general office employees, carrying the signatures of the four union officers whose names are appended:

The huge fund of over $500,000,000 created by employee contributions since January 1, 1937, standing to the credit of those now living and to which the employees have a vested right or legal "title" will be confiscated by the Crosser amendment to the 1937 Railroad Retirement Act, effective January 1, 1947.

These "estates" or "equities" range in present value up to $1,400 per employee and unless this retroactive amendment is voided by the courts thousands of those designated as "beneficiaries" to receive these funds in case of the employee's death prior to the pension age of 65 will never receive them.

As a flimsy "will-o'-the-wisp" substitute for this confiscated vested right of the 1937 Act, the Crosser amendment promises a "survivor annuity" with so many "deductions" and "strings" attached to it that only a few survivors will receive the benefits to which they are entitled.

This amendment also increases the employee and employer contribution from 3½ per cent to 6¼ per cent *each* to a total of 12½ per cent or $1.00 out of every $8.00 of the payroll. This would mean $25 per month (or $300 per year) for each $200 per month job on the payroll.

During a 40-year period of employment (under the new 12½ per cent payroll tax) about $12 billion will have been paid into the retirement annuity fund for an estimated one million employees. Under the 1937 plan this employee contribution *alone* would create a fund of $6½ billion to which employees would have title and which would be available for pre-pension death payments in amounts up to $8,000 each. The Crosser amendment diverts this fund to an inaccessible recess and *destroys any employee title to or claim upon it.* This $6½ billion would yield $10½ billion if the monthly payments on which it is based were invested in United States Savings Bonds. The employee-employer contribution would produce $21 billion.

It will be possible under the Crosser amendment for employee and employer each to pay $7,500, total $15,000, which would yield "estates" of $8,000 and $16,000 respectively, out of which the Retirement Board would only pay a lump sum death "benefit" of $532 for burial expenses—if claimed by someone. The employee cannot designate to whom the death benefit shall be paid. Neither can he leave any of his $8,000 estate to any of his grown sons or daughters who may be in need or to those who may have taken care of him and to whom he is indebted. Under the 1937 Act the entire estate of $8,000 would be paid to any beneficiary designated by the employee.

Bachelors and unmarried women without dependent parents could easily carry guaranteed disability protection and annuity policies with private insurance companies, with the privilege of designating a beneficiary, at less cost than under the Crosser amendment. Under the Crosser Amendment they may be required to pay to the Railroad Retirement fund $7,500 from which approximately $500 *may* be paid to someone for burial expense if the party bearing the expense knows about the provisions of the Crosser amendment. The balance of the $7,500 would be "absorbed" into the Railroad Retirement fund.

All widows and children of World War I veterans receive annuities not related to the Railroad Retirement Act. However, if any of the time he was in war service is used, as it may be, in computing his railroad service under the Retirement Act, survivor annuities provided by the Crosser amendment and paid for by the veteran will never be paid. Potential insurance or death cash survivor benefits of $3,400 to $5,000 which would accrue under the 1937 Law for these veterans will be wiped out.

What about World War II veterans? (Over 20,000 of them with the Southern Pacific alone). It is highly improbable that their widows or children will ever receive survivor annuities promised by the Crosser amendment and paid for by the veterans because these widows and children are entitled to war veterans' pensions. These veterans will, during the next 40 years, contribute about $6,000 each to the retirement and annuity fund. Adding the railroads' contribution, if these monthly taxes were invested in United States Savings Bonds they would acquire a cash value equivalent to over $20,000 for each employee. Instead they will have the Crosser amendment with no guarantee of cash refund in case of death prior to age 65 and no assurance of annuity protection for widows or children from this huge investment. A war veteran's widow's pension will be deducted from her Railroad Retirement survivor annuity which in most cases will mean no annuity from the veteran's investment in retirement fund.

This is not a cheerful outlook for the veterans, many of whom will be forced to discontinue their $10,000 government life insurance now carried for $150 per year because of this mandatory "donation" required by the Crosser Amendment.

A small "lump-sum death benefit" of about $400 will be "loaned" to a widow without children under 18 years of age at the time of her husband's death. However, at age 65 if she has never remarried and if not a war veteran's widow she *may* re-

ceive a small pension of $20 to $25 per month, out of which she must repay the $400. The only way she can avoid repayment is to remarry, or die, prior to age 65. No death benefit will be paid to a widow age 65 or one with children under 18 years of age. A widow with children under 18 will receive from $35 to $45 per month and each child from $25 to $30 per month until the youngest reaches 18, at which time payments to widow and child cease. The widow's annuity is resumed at age 65 if she does not remarry.

Who can exist on these amounts? The only solution is for the employee also to carry life and annuity insurance; $10,000 ordinary life insurance at age 25 will cost at least $150 per year. The employee-employer contribution to the Railroad Retirement fund on a $250 per month salary at 12½ per cent totals $375 per year. This amount plus the employee's $150 per year for non-annuity, non-disability, ordinary life insurance totals $525 but $507 a year will pay for a $10,000 standard life insurance company policy (at age 25) providing: $100 per month disability income without time limit; an annuity of $140 per month starting at age 65 and continuing for life; $100 per month immediately to be paid to the insured's widow (if he dies before age 65) for her remaining life either single or remarried; and at time of widow's death any balance from the $10,000 to be paid to the estate. Policies for smaller amounts cost proportionately less.

Hold Company Responsible

The circular signed by officers of the clerks' brotherhood reads in part as follows:

Within the last month petitions have been passed around the general office by a group of employees on supervisory positions, addressed to members of Congress, condemning the Crosser amendments to the Railroad Retirement and Unemployment Insurance Acts, and asking that these amendments be repealed.

Here is the history of these amendments: A committee of the Railway Labor Organizations devoted months, with the help of economists and actuaries, drawing up the proposals that were submitted to Congress. The congressional committee, headed by Clarence Lea, a very good friend of the railroads, pigeonholed the amendments for approximately fourteen months. The brotherhoods finally had to get a sufficient number of congressmen to sign a discharge petition in order to get it before Congress for a vote. The powerful railroad lobby of the Association of American Railroads viciously opposed the amendments during the time they were handled in committee and when they were being considered by Congress. The railroads are going to continue their fight and, because the big officials cannot appeal as well to the employees as a few stooges on petty larceny semi-official positions, they are the ones who are asking the employees to sign the petitions.

Liars can figure, and a good job of confusing the employees was done in a recent circular accompanying a petition, titled, "Wake Up Railroad Workers." It was filled with emotion for the veteran, but it failed to say that, regardless of seniority, a veteran is deprived of a vacation in the year of his return. Many tears were shed about the widows and orphans, but did the company give them anything under the company pension plan which was in effect prior to the enactment of the Railroad Retirement Act? Yes, the company did have a voluntary pension plan on this railroad, but many other railroads did not and many employees on those roads worked until they dropped dead at the age of seventy-five or eighty.

At least 75 per cent of the railroad workers do not get any compensation when sick. Under the amendments, you will all get payments for 130 days in a year when off work account of sickness or injury, starting July 1, 1947.

Are you naive enough to think that the Southern Pacific is interested in your economic welfare when, obviously, they sponsor these petitions—at least some of them are made on company time, company material, and on company equipment, and, in practically every case, it is not the average rank and file employee who circulates them? It is, as previously stated, stooges on supervisory positions. Once in a while one of the regular employees unwittingly becomes the tool for the bosses.

If you cannot answer these questions, we can. They are not the least bit interested in the benefits you will derive from the amendments; they are interested in the dollars and cents it will cost them to pay for the increased benefits. A small percentage of employees have been foolish enough to fall for the company's plan to kill the benefits of the amendments. Some signed petitions because they thought the movement was genuine and was being sponsored by legitimate rank and file members. Practically all of the railroad workers need these amendments even though each one may not have a widow or orphans, or dependent parents, or get sick or injured. It is very good security for every railroad worker and the vast majority are exceedingly happy that they and their families are now better protected for the hazards of life. Do not be foolish enough to sign a petition just because the railroad companies do not want to contribute an equitable amount to protect the employees who serve them a lifetime!

This is always a good thing to remember: The railroads, like all others in big business, are interested in making money. The union representatives are interested in protecting the economic welfare of the employees. The railroad brotherhoods have spent lots of money and worked hard to get the Railroad Retirement and Unemployment Insurance Acts and the Crosser amendments passed; the railroad companies have always worked viciously to try to keep them for being enacted. You, as an employee, should not be hoodwinked into doing something that will actually work to your disadvantage.

M. M. Fremley, *General Representative*
A. F. Gaynor, *Grand Lodge Organizer*
C. R. Reynolds, *General Chairman*
H. A. Tattenham, *Acting Division Chairman*

Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees

Let's Know the Facts!

Quoted below are excerpts from the first of a series of articles by G. Metzman, president of the New York Central, appearing in that company's employee magazine "The Headlight," under the heading "Let's Know the Facts!" The series is designed to acquaint the New York Central's employees with the problems and policies of their employer, a type of information which the recent *Railway Age* survey of employee opinion found generally lacking among employees of most railroads.

"The New York Central did not just happen. It is the result of more than 100 years of effort and sacrifice on the part of thousands of persons from every state of the union and many foreign countries. Some worked directly on the road, others gave their savings to build one of the largest railway systems in the world.

"Railroad operations are changing fast. A steady stream of money is needed for improvements. These include heavier roadbed, more powerful locomotives, more comfortable passenger equipment and better freight cars. Many other improved tools are required . . .

"Funds for equipment and improvements have been made available in the past because investors felt reasonably certain that they would get a return in the form of interest or dividends.

"We should make sure that those who have provided the funds for equipment do not lose faith in us. This they will do unless they receive a fair return on the money supplied.

"There are about 125,000 of us getting a livelihood from the New York Central. Over the years, individual investors with faith in our road have provided an average of nearly $18,000 for each of us to keep in business. This has provided engines and cars and many other items.

"Last year the New York Central took in a gross income which averaged $5,420 for each individual in our organization. This included $163 from dividends on stock, interest on bonds and rent on real estate owned by our railroad.

"Out of the individual gross income of $5,420 we each received as pay an average of $2,645 or 48.8 cents of every dollar taken in. In addition $162 was paid by the company for each of us individually to the retirement and unemployment fund, from which we expect to receive benefits later.

"Other expenses had to be taken care of to keep our business operating efficiently. . . . [Payment of these bills] left only $391 to be applied as rent for the $18,000 furnished to each of us by the investors. These rental payments by us included $195 to bondholders and $78 to stockholders. That made a total payment of $273, which was all that they received in return for their investments last year. The remaining $118 was reserved for a rainy day."

GENERAL NEWS

Rail Repair Program Progresses in Reich

Conditions in Korea, however, hampered by walkout of 300,000 employees

The "high priority" rail equipment repair program in the United States zone of occupation in Germany made further progress in August, with a gain of 13 per cent in the number of locomotives, 32 per cent in the number of freight cars and 25 per cent in the number of passenger cars repaired at private shops in the U. S. zone, it is disclosed in the War Department's latest report on industrial conditions in that country.

At the same time, however, the report notes that in order to put the "large quantity of rolling stock" available in the U. S. zone back into "operable condition," a further "substantial expansion" in rail equipment repair is needed. It is said that although progress is being made in repairing the backlog of bad order cars, a "large portion" of the rolling stock in operation is also continually in need of repairs, thus adding to the work-load of the repair shops.

Bridges Repaired—According to the report, rail trackage in operation as of August 31 had increased to 97 per cent of that formerly operated in Germany, as compared to 96 per cent on July 31. It is said that about 90 per cent of military supplies, civilian freight and passenger traffic now move by rail. It also was reported that out of a total of 10,570 rail bridges in the U. S. zone, 10,501 are now in operation. It said that 869 of the 938 bridges damaged or destroyed during the war have been repaired and that of the 15 bridges repaired during July and August, 5 have been permanently reconstructed.

Coincident with the War Department's survey of rail conditions in Germany was an announcement by Secretary of War Patterson that the War Department is "making headway" in breaking the food transportation bottlenecks, which, he said, have "threatened to wreck the occupation program." He said that the reasons for the current critical food situation in Germany are due to the recent shipping strike, the continued shortage of box cars and the added tonnage which must now be sent to the British zone.

"The main bottleneck lies in transportation," he continued. "We must send to our zones in Germany approximately 300,000 tons of grain for food a month to maintain a daily minimum ration of 1,550 calories. We have it available in this country, over and above our heads. All we lack is railroad transportation. If we do not get that transportation, we face famine, chaos and the risk of failure."

Grain Transport Plan—Secretary Patterson said that under arrangements recently made, the greater part of the December grain shipments will move from Albany, N. Y., on 17 ships chartered by the Army Transportation Corps. He said that the Coast Guard will sweep Hudson River channels with ice-breakers in order to prevent shipping schedule delays and that in order to provide against other unforeseen delays, standby vessels will berth at other ports to expedite the shipping schedule and "be in readiness to accept any additional cargoes which may be set up on short notice."

In an accompanying War Department report on military conditions in Korea, it was revealed that railroad facilities suffered a "critical setback" through the strike of rail employees which stopped all railroad transportation in South Korea on September 22. The rail strike, which followed a rise in all phases of Korean railroad transportation in August, was accompanied by a postal employees' strike, which interrupted mail service.

According to the report, more than 300,000 workers participated in the rail strike "without prior attempts at mediation or other settlement of their grievances." It said that the labor mediation boards were not able to contact responsible committees with whom to discuss details of the strike and that "such petitions as were received were not signed."

Speedier Transportation Asked to and from Airports

Speedier transportation by means of "super highways" or rapid commuter service is the most sensible way to reduce ground time between metropolitan areas and airports, W. A. Patterson, president of United Air Lines, told members of the Transportation Engineering section, Western Society of Engineers, at Chicago on December 17. Mr. Patterson said that moving airports closer in to metropolitan areas, as is being proposed in many cities, is not the solution to the problem.

Katy Board Meeting in Texas

Continuing a policy of holding board meetings in cities served by the Missouri-Kansas-Texas, the boards of directors of that road's Texas and Missouri companies met for the first time in the Katy's history at Fort Worth, Tex., on December 17. R. J. Morfa, board chairman, spoke briefly at a luncheon attended by more than 250 leading business and professional men of the city. Mayor Roscoe Carnrike, of Fort Worth, told the group of the Katy's value to the city.

Rutland Revamp Plan Approved by I.C.C.

Equity holdings out as capitalization is cut and fixed charges eliminated

Preferred and common stockholders of the Rutland will be wiped out as that road's capitalization is reduced from $18,296,300 to $10,992,950 and its former fixed-interest charges of $386,095 are eliminated under a plan of reorganization which has been approved by Division 4 of the Interstate Commerce Commission in a report dated December 11 and made public on December 19. The plan, with a January 1, 1947, effective date, was promulgated pursuant to section 77 of the bankruptcy act, the road, following litigation about the matter, having finally succeeded in shifting to that procedure in 1944 after it had been in equity receivership since 1938.

All Capital in Stock—Under the plan the new capitalization will consist of $4,981,750 of 5 per cent preferred stock of $100 par value, and $6,011,200 of $100-par common. Thus there will be no fixed or contingent interest charges, although annual rent for leased roads will remain at $15,000, which the Rutland gets back in the form of dividends on the capital stock of the Addison. Dividend requirements on the preferred stock will be $249,087 annually. These dividends will be cumulative, whether or not earned, up to but not exceeding at any one time a maximum of 15 per cent. Both classes of stock will have voting rights, but the commission rejected proposals that it require the establishment of a voting trust for the stock.

All of the new preferred and common stock will be distributed to present bondholders, whose claims as of January 1, 1947, will total about $12,603,170. For each $1,000 of such claims, the allocation of the new stock will be as follows: Holders of Ogdensburg & Lake Champlain first mortgage, 4 per cent bonds, due July 1, 1948, will receive six shares of new preferred and six shares of new common; holders of Rutland first consolidated mortgage, 4½ per cent bonds, matured July 1, 1941, will receive five shares of preferred and seven shares of common; holders of Rutland-Canadian first mortgage, 4 per cent bonds, due July 1, 1949, will receive 4½ shares of preferred and seven shares of common.

Collateral pledged under the O. & L. C. bonds includes 2,000 shares of Rutland Transit Company stock, and the plan provides for a voting trust agreement for this stock, thus setting up arrangements whereby

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Approves Nickel Plate Control of Wheeling

But I. C. C. insists that C. & O. holdings be transferred at cost price

Overriding Chesapeake & Ohio protests against that recommendation of Examiner Ralph R. Molster's proposed report, the Interstate Commerce Commission has authorized the New York, Chicago & St. Louis to acquire 78,145 shares of Wheeling & Lake Erie Common stock from the C. & O. only on condition that the transfer price be limited to the amount which the C. & O. paid for the stock—$4,168,388 or $53.24 per share as compared with $5,470,150 or $70 per share proposed in the application. The acquisition would build Nickel Plate's holdings of W. &. L E. voting shares to 46.9 per cent of the total, thus paving the way for unification of the roads' managements, but lease or merger under the applicable laws of Ohio would have to await the accumulation of a two-thirds interest.

The proceeding is Finance Docket No. 15181, and the commission's report dated December 10 and made public December 20, states that "if the indicated price is unacceptable to the Chesapeake & Ohio, then the proposed transaction will apparently have to fail." Issuance of an order was withheld for the purpose of considering the applicants' acceptance of the transfer-price requirement and other conditions; and, "if such acceptance is filed," the proceeding will be held open for 60 days from the date of the report. Aside from the price requirement the conditions prescribed by the commission are somewhat different from those recommended in the proposed report which was noted in the *Railway Age* of July 27, page 146, where the protest of Robert R. Young, chairman of the C. & O. board, was also reported.

Stock Sales Restricted—Included in the commission's report was a warning that the C. & O. should not assume that it needs no commission authorization to dispose of its Wheeling holdings elsewhere or to sell its controlling interests in other railroads. The warning came in the commission's comment on an inquiry in the C. & O. exceptions to the proposed report which asked if there were any reason why the Wheeling stock could not be offered on the market, or through a syndicate operation, "and thus realize its present value." Previously the report had referred to the abandonment of the 1945 proposal to merge the C. & O., Pere Marquette, Nickel Plate, and Wheeling, when the protest of certain Nickel Plate preferred stockholders prompted the C. & O. to withdraw with the intimation that it might be disposed to sell its holdings of Nickel Plate common.

"The end of the declared national transportation policy of Congress," the commission said, "is the developing, coordinating, and preserving of a national transportation system. All initiative in the matter of unification is left with the carriers, but, in aid of the congressional policy, means of accomplishing unification otherwise prohibited, are provided in section 5(2). If, after our authorization and approval in the premises were obtained and exercised, the carriers were free to deal with relationships thus created, that is, to continue them or to dissolve them at their own election, our determinations could be annulled and the policy of Congress defeated at their pleasure. We think that this would be in direct contravention of that purpose and, therefore, that the Chesapeake & Ohio's ability, without our authority, to dispose of its interests in carriers which it controls pursuant to authorization sought and obtained from us, is gravely questionable."

Meanwhile the report prepared the way for consummation of the transaction it conditionally approved with a *finding that* the W. & L. E. common should be released from the deposit and voting trust agreement under which it has been held since July, 1929. Also, the commission approved a like release of W. & L. E. preferred and prior-lien stock owned by the C. & O. and Alleghany Corporation, provided such stock is added to C. & O. and Alleghany holdings which are deposited with the Chase National Bank of New York, as independent voting trustee under the indenture created pursuant to the commission's 1945 decision approving Alleghany's control of the C. & O., P. M. and Nickel Plate.

The July, 1929, voting-trust agreement was executed after the commission had found in the No. 21012 proceeding that the acquisition in 1927 of joint control of the Wheeling by the Baltimore & Ohio, New York Central and Nickel Plate was in violation of the anti-trust laws. While that proceeding was under way, the B. & O. and N. Y. C. sold their Wheeling holdings to Alleghany; and there have since been transfers by sale of deposit certificates between Alleghany and Nickel Plate and between the latter and C. & O.

Amounts Held—Nickel Plate now holds certificates for 186,000 shares or 49.8 per cent of the Wheeling common and 14,800 shares or 14.5 per cent of the preferred, both having voting rights and comprising a voting interest of about 32.9 per cent. In addition to the 78,145 shares of the common which it proposes to sell at this time, the C. & O. has certificates representing 1,658 shares of preferred and 115,369 shares of a third class of Wheeling voting stock—prior-lien. Alleghany's only remaining Wheeling stock consists of 54 shares of the latter.

These preferred and prior-lien holdings of C. & O. and Alleghany comprise the stock which the report's aforementioned condition would require to be deposited with the Chase National Bank. While they were not involved in the present transaction, Nickel Plate was to have had the right to purchase them on specified terms under an option which was "effective for one year from December 4, 1945." In the latter connection the commission included in the report a footnote which said that "in view of all the circumstances, our conclusions herein are not affected by possible expiration of this option."

Some of the Nickel Plate's preferred stockholders asked the commission to defer action pending the outcome of litigation they

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I.C.C. Summarizes 1945 Accident Data

Marked decline in passenger fatalities from 251 to 143 noted in report

Railroad accidents of all kinds during the calendar year 1945 resulted in 4,691 deaths, a decrease of 1.88 per cent under the 1944 total of 4,781, and passenger fatalities decreased 43.03 per cent, from 251 in 1944 to 143 in 1945, when the number of passenger miles also was 3.98 per cent less than in the previous year, according to Accident Bulletin No. 114, which has been released by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The over-all volume of traffic was 3.49 per cent less in 1945 than in the previous year, as measured in train-miles, resulting in a fatality rate for 1945 of 4.14 persons per million train-miles, and 0.25 per cent increase over the 1944 rate of 4.07.

An increase of 0.41 per cent in the number of non-fatal injuries to all persons was reported in 1945, as compared to the previous year, the respective totals being 61,481 and 61,227. This figure was higher than in any recent year, but still fell considerably below 1929's 76,979. The frequency rate for non-fatal injuries likewise showed some increase in 1945 as compared to 1944, the figures being respectively 54.2 and 52.1 persons per million train-miles. The number of non-fatal injuries to passengers also increased from 5,763 in 1944 to 5,827 in 1945, the frequency rates being respectively, 60.2 and 63.4 per billion passenger-miles.

The reduction in the number of passenger fatalities in a period of smaller volume of travel also resulted in a substantial improvement in the frequency rate for 1945 as compared with 1944, the respective figures being 1.56 and 2.62 per billion passenger-miles. The 1945 total of passenger fatalities was below the 1943 total of 265, and 1945's frequency rate was below that of every year except 1941 for the past eight years.

Of the 143 passenger fatalities reported for 1945, 65 resulted from train accidents, and the bulletin comments that 86.15 per cent of the latter resulted from 5 accidents, as follows (the year in each case being, of course, 1945): A derailment June 15 on the Pennsylvania; a collision August 9 on the Great Northern; a derailment September 4 on the Atchison, Topeka & Santa Fe; a collision December 16 on the Seaboard Air Line; and a derailment December 17 on the Pennsylvania.

Fewer Employee Fatalities—Data on casualties to employees show that 892 were killed and 47,285 injured in accidents of all kinds in 1945. These figures represent a decrease of 8.79 per cent from the 978 fatalities reported in 1944 and a decline of 0.10 per cent from the 47,330 non-fatal injuries for that year. With the exception of 1944, the total of non-fatal injuries to employees exceeds any year since 1929, and

(*Continued on page 1097*)

Railroading in 1946 Reviewed by Fletcher

Despite record traffic volume, he finds net earnings "little better" than pre-war era

Although the railroads of the United States handled during 1946 the "greatest volume of traffic" of any previous peacetime year, their net earnings were "little better" than those of the depression years that preceded World War II, R. V. Fletcher president of the Association of American Railroads, declared in a December 27 statement in which he reviewed railroad operation for 1946. Judge Fletcher also noted that because of sharply increased wage rates and prices of fuel and supplies, the "relative spread" between railroad expenses and revenues in 1946 was the smallest since 1920. He said that in the past 57 years, there have been only four other years, 1918 to 1921, inclusive, in which such a high ratio has been experienced.

Judge Fletcher's statement follows:

"Railroads of the United States in 1946 handled the greatest volume of traffic of any peacetime year but their net earnings were little better than those of the depression years that preceded World War II.

Ratio Above 80 Per Cent—"Because of sharply increased wage rates and prices of fuel and supplies, the relative spread between railroad expenses and revenues in the current year was the smallest since 1920. The ratio of expenses to revenues in 1946 exceeded 80 per cent. In the past 57 years, there have been only four other years, 1918-1921, inclusive, in which such a high ratio has been experienced.

"The Interstate Commerce Commission on December 5 authorized the railroads to make increases in freight rates averaging approximately 17.6 per cent and to continue in effect the 10 per cent increase in passenger fares authorized in 1942. At the same time, the interim freight rate increases in effect since July 1 were cancelled. The rates which will become effective on January 1, 1947, will increase rail revenues by about $970,000,000 annually. Since the cancelled interim rates produced about $170,000,000 in the last half of 1946, the net increase in freight revenues in 1947 over 1946 will approximate $800,000,000, assuming the same level of traffic in the two years.

"Increases in wage rates, as well as higher prices of fuel, materials and supplies since 1939 have increased rail operating expenses annually by approximately $2,100,000,000. More than $900,000,000 of that increase took place in 1946. In addition, it is estimated by the railroads that operating costs in the coming year will be further raised at least $250,000,000 because of increases that have already taken place in fuel and material prices and because the Crosser Act will, on January 1, 1947, increase rail payroll taxes in order to provide additional benefits to employees under the broadened scope of the revised Railroad Retirement Act.

"Preliminary estimates indicate that freight traffic in 1947 will be on about the same level as in 1946, but passenger traffic will probably decrease substantially.

"Rail freight traffic in 1946 was about midway between the war peak attained in 1944 and the prewar peak of 1929. Freight ton-miles were 14 per cent below 1945, and 20 per cent below 1944, but 31 per cent above 1929. Passenger traffic was 29 per cent below 1945, 32 per cent below the war peak in 1944, but 39 per cent above the peacetime peak of 1920. The net railway operating income of the Class I railroads in 1946 was equivalent to a rate of return on net property investment (after depreciation) of about 2¾ per cent, or only slightly greater than the average for the five years, 1936-1940. If carry-back tax credits taken in 1946 are excluded, however, the rate of return would fall to about 2 per cent, or not much greater than the average for 1931-1935, the worst years of the depression period.

"The average revenue for hauling a ton of freight one mile has amounted to less than one cent in every year since 1932, when it was 1.046 cents. In 1946, the average was .975 cent. The increase in freight rates allowed by the I. C. C. will raise that average to about 1.1 cents in 1947, or about the same as in the 10-year period, 1921-1930.

"Railroads since late this summer have been faced with an exceptionally heavy demand for freight cars. This has been due in part to the change in the nature of the traffic offered since the end of the war and to changes in the working conditions of industry. As a result the car supply, especially of box cars, has been tight.

Equipment Needs—"During the war period, railroads were handicapped by failure to obtain as much new equipment as was needed, and also by shortages in materials and supplies used in daily operations. While some improvement has taken place in the 16 months since the end of the war, the situation is still far from satisfactory. Shortages of materials and labor difficulties have slowed deliveries of new equipment, rail, ties and other materials.

"Railroads in 1946 installed approximately 40,000 new freight cars in service. They

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New Rates Effective Jan. 1

Acting in accordance with special permissions obtained from the Interstate Commerce Commission, the railroads this week were filing master tariffs and connecting-link supplements to make effective on January 1, 1947, the freight rate increases authorized by the commission in its final report in the Ex Parte 162 proceeding. That report, reviewed in the *Railway Age* of December 14, page 992, approved advances averaging 17.6 per cent to supersede the interim increases averaging 6.5 per cent which have been in effect since July 1. Like increases will also be made by the freight forwarders, effective also on January 1 or shortly thereafter.

Teamwork Put Roads Over Embargo Hump

Kendall hails cooperation received; sees need for still better car utilization

Listing the general freight and express embargo, which was in effect from 12:01 a.m. December 6 until 3:30 p.m. December 7, as the "major recent transportation development," Chairman Warren C. Kendall of the Car Service Division, Association of American Railroads, went on in his latest monthly review of the "National Transportation Situation" to report that there was during that period "the utmost cooperation by all concerned, and all are entitled to our deepest appreciation." The embargo, imposed by the Interstate Commerce Commission's Service Order No. 649, resulted from the strike of bituminous coal miners who returned to work on December 9.

It applied to all shipments with but limited exceptions, Mr. Kendall pointed out, adding that it was "naturally a staggering blow to industry and to the railroads and the administration of it presented many problems to the Car Service Division." Many hundreds of requests by telegraph and telephone for permits "had to be denied but there was on every side cooperative acceptance of the many problems involved."

No Relief in Sight—With respect to carloadings generally, the C. S. D. chairman found indications that "exceedingly heavy" demands for cars would continue, and he called upon shippers and carriers to develop still greater efficiency in the handling of equipment. "As far as it is possible to forecast the future as to box car supply," Mr. Kendall said, "there appears little prospect of any substantial relief in sight for months to come and the continued closest cooperation of all concerned in the prompt loading and unloading of cars is required in meeting the problem which lies ahead."

Previously he had pointed out that despite the reduced coal loadings as a result of the strike and the seasonal stoppage in lake-ore shipments, the loadings for the week ended December 7 were down only 47,292 cars from those of the comparable 1945 week. And the cumulative total of loadings for the first 49 weeks of this year was but 2.3 per cent under the like period last year. Meanwhile, the November box car loadings exceeded those of November, 1945, by nearly 6 per cent; and the December 7 week was the third recent week in which more than 400,000 box cars were loaded.

More extended comment on the box-car situation was included by Mr. Kendall in the "closed cars" section of his report. There he noted that the demand for box cars "continues to exceed the supply and deficiencies are reported in every section." Thus C. S. D. was continuing its undertaking to allocate the supply "in the most equitable manner" by distribution orders, "buttressed by I. C. C. directives." The tight situation was attributed in part to strikes and other interruptions which have resulted in a heavy backlog of manufactured goods and other materials requiring box

cars. In addition, "there still remains a huge volume of grain which must be moved prior to the harvesting of next year's crop."

Much Grain on Farms—In the latter connection Mr. Kendall went on to explain that a larger volume of grain still remains on the farms as compared with a year ago, while the government relief program's December schedule calls for the export of approximately 40,000,000 bushels of bulk grains and 200,000 long tons of flour. "This program alone," the C. S. D. chairman calculated, "will require 23,687 cars for loading bulk grain and 4,700 for flour . . . The bulk grain program as of December 11 will require the loading of about 950 cars per day and the flour program 190 cars per day through December 31, if the full schedule is to be met."

On the matter of box-car supply, the report pointed out that the November 15 ownership of serviceable cars was 703,766, a decrease of 8,913 from the November 15, 1945, ownership. For the 14 weeks ended November 30 weekly box-car loadings averaged more than 50 per cent of the serviceable supply—387,141 cars as compared with 361,090 cars for the corresponding period in 1945. "The constant use of box car equipment with resultant wear and tear," the report continued, "is reflected in the fact that notwithstanding a total of 18,379 new box cars installed during the 12 months ended November 1 total box car ownership actually decreased 15,013 cars in that period."

As to stock cars, Mr. Kendall reported that the demand for this type of equipment had subsided with the passing of the recent upsurge in livestock loading — "although there is still considerable loading in western territory." The situation with respect to automobile cars remains the same as it has been for sometime, i.e., with material shortages and "other interruptions" in allied industries indicating that automobile manufacturers will be unable to effect material improvements in their own production schedules in the near future.

Coal Industry's Record—Reviewing the coal-loadings situation as of December 9, when the latest strike ended, Mr. Kendall noted that this and the other 1946 walkout had kept the great majority of the bituminous mines closed for approximately one-quarter of this year. Yet total coal loadings for 1946's first 49 weeks—7,465,759 cars—were only 391,046 cars or 5 per cent below those of the comparable 1945 period. This, as the C. S. D. chairman put it, "readily reflects the record performance made by the coal industry and the railroads during the 36 weeks this year in which the miners were working full time. As a matter of fact all coal loading records back to 1926 were broken by the peak loading performance during the 23-week period between the two strikes."

In view of the adverse effect of the strike on hopper car loadings of coal and coke, Mr. Kendall found it "surprising" that during the four-week period ended November 30, which included two weeks of the strike, the hopper-car loadings of all commodities were only 34,806 cars, or 3.8 per cent less, than those of November, 1945. This situation was attributed to "extremely heavy" hopper loadings of ore and road-building materials, and the use of hoppers for a "considerable amount" of grain, particularly on the government relief program.

While the lake-cargo movement was somewhat affected by the strike, Mr. Kendall reported that most of the shipments which would close the season was enroute to the lower lake ports when the walkout came. Thus the dumpings up to December 2 totaled 49,296,831 tons, the year's program having called for 50 million tons. The movement of ex-lake iron ore totaled 59,356,716 tons, the goal having been 60 million tons. On the other hand, export coal movements which had been seriously affected by the maritime strikes of September and October got another set-back in the coal strike. Only 42.6 per cent of the November program, calling for the export of approximately 2,500,000 tons, was met.

While the coal strike also resulted in reduced demands for gondolas in iron and steel loading areas, other requirements for such equipment "continued heavy" throughout November, and "quickly absorbed the cars made available by some curtailment in steel production." The traffic for which gondolas are in demand includes lumber movements in the Northwest, movements of road building materials in the South and Southwest, and sugar beet movements in the Central West.

All Car Types in Demand—The temporary availability of more gondolas resulted in "some slight decrease" in Pacific Northwest demands for flat cars. Nevertheless, Mr. Kendall reported that demands for flats are increasing with renewed manufacturing activity, particularly in the agricultural implements and vehicles industries. Also, the situation with respect to covered hopper cars is "extremely tight," despite the addition of more than 3,000 of these cars to railroad ownership this year. The demand arises out of the use of covered hoppers for certain export grain movements, and requirements for loadings of cement and other materials needed in the building program.

The demand for refrigerator cars "continues strong," but Mr. Kendall attributed some part of recent shortages to delays in moving empties during the coal strike and to the heavy holiday movement of perishables. He anticipated improved handling of reefers "now that normal operations have been resumed." At the same time he warned that "the prospective heavy requirements are such that both loaded and empty refrigerator cars should be given expedited handling and every possible action taken to eliminate delays."

The movement of l.c.l. "continues at high levels," but reports on congested freight houses "continue to record a gradual reduction in cars awaiting unloading, although anticipation of the embargo . . . resulted in a temporary bulge in l.c.l. freight offered to the railroads." There was likewise a temporary increase in congestion immediately after Thanksgiving day, Mr. Kendall said, adding that it was cleaned up in the following week. He also mentioned the Office of Defense Transportation's recent action extending from December 20 until February 28 the relaxtions of its l.c.l. minimum-loading order (see *Railway Age* of December 21, page 1059).

Army Provides Cars—In his discussion of "military transportation," Mr. Kendall reported that the Secretary of War and Secretary of Navy had recently issued instructions for the staggering of labor at various installations in order to provide skeleton forces to unload and release cars over week-ends. Also, the Army's chief of transportation is engaged in a survey of all War Department installations to determine what rolling stock might be declared "temporarily surplus" and made available for use in railroad service. Thus far the survey has turned up more than 100 box cars in serviceable condition; and "arrangements have been made with the Army to release these cars to the carriers." Mr. Kendall expected that additional cars would thus be made available as the survey proceeded.

The C. S. D. chairman's brief comment on passenger cars noted that the 2,400 troop sleepers and 800 troop kitchen cars, which the Reconstruction Finance Corporation acquired and rented to the railroads, made a total of 120 million miles in carrying military personnel. Up to October 1, the mileage made by sleeping cars of all types used for organized military movements amounted to approximately 1,091 million miles.

The usual freight car turn-around-time and detention reports indicated the turn-around time for all freight cars in November was 14.26 days, the increase over October's 13-day figure being attributed to "reduced volume of loading." There was also an increase in percentage of car detention in excess of the free time, the November figure being 16.35 per cent as compared with October's 15.82.

Davies Leaves Federal Service

Ralph K. Davies, who served throughout the war period as deputy administrator of the Petroleum Administrator for War, has resigned from the acting directorship of P.A.W.'s successor, the Oil and Gas Division of the Department of the Interior. He will be succeeded by Max W. Ball, geologist and petroleum engineer, whom Secretary of Interior Krug has appointed director of the division.

Car Service Orders

Effective December 21, the Interstate Commerce Commission suspended Service Order No. 647 which had maintained since December 9 a priority system on Commodity Credit Corporation grain offered for loading at points in Oregon, Washington, Idaho and western Montana. The suspension came in Service Order No. 647-A.

At the same time the commission issued Service Order No. 661, effective from December 23 until February 10, 1947, unless otherwise modified, which establishes a permit system, for loading canned goods, seeds, peas, beans, flour grain, grain products or grain by-products originating in the territory covered by Service Order No. 647 and consigned to Atlantic or Gulf ports for export. The permit system also applies to reconsignment, diversion, rebilling or reshipping to Atlantic or Gulf ports for export of the commodities named when originating in the described territory.

Further relief from conditions due to the recent maritime strike will be provided

by Amendment No. 5 to Service Order No. 87, which will be in effect from January 1, 1947, until February 1, 1947. The order maintains demurrage rules applicable to tidewater coal at North Atlantic ports; and the new amendment will extend the relief accorded by Amendment No. 4, thus providing that excess debits accruing during the settlement period ending November 1 may be offset by excess credits earned at the same point by the same consignee in the settlement period ending February 1, 1947.

Rutland Revamp Plan Approved by I.C.C.

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the stock could be sold as a whole and the proceeds, together with all accumulated dividends, distributed pro rata to the bondholders. Rutland Transit owns warehouse properties in Chicago.

Future in Doubt—Like Examiner Homer H. Kirby, whose proposed report was noted in the *Railway Age* of May 25, page 1084, the commission found that the record in the proceeding raised "a serious question as to whether the debtor may be reorganized successfully under present conditions." The answer, it said, "depends upon whether it has a reasonable prospect of being able to meet its operating expenses and pay its taxes, with a sufficient margin to provide for its necessary working capital and to maintain its physical plant to the standard required by the service which it performs." The Rutland would not meet that test "on the basis of its current and recent performance," the report added; but it went on to list "some favorable factors," which prompted the commission to shy away from finding either that the road should be abandoned or that it should continue to be operated under supervision of the court indefinitely.

"The debtor," the report said, "had a long record of successful operation until it experienced loss of traffic in the depression years preceding its receivership in 1938. It is a vital factor in the economy of western Vermont and northern New York, and performs essential transportation service in that territory. Its earnings during the war years, unlike those of many other railroads, were not inflated to the extent that it is necessary to discount them substantially in estimating the debtor's normal prospects for the future.

Favorable Factors — "The evidence tends to support a belief that the volume of the debtor's future traffic, after a short post-war recession, will return to a level somewhat above that prevailing prior to 1941 or 1942. There has been a steady increase in operating revenues over the past six or seven years. There is a possibility that the reorganized company, as an independent bargaining agency, may be able to obtain more satisfactory arrangements with its connections and thereby increase its revenues. There is also a possibility, though remote, of the reorganized company's working out, by private bargaining, an agreement for consolidation with, or sale or lease to, one of the stronger railroads in the territory. The debtor is not burdened with any equipment-trust obligations or debt guarantees, nor does it have any sizable loans and bills payable outstanding. The debtor's cash and current asset position, though having deteriorated somewhat during the past year and a half, may be regarded as favorable, especially in view of its purchase for cash of four new locomotives which should greatly improve its motive power and equipment situation.

"In the light of these favorable factors, despite a poor current earnings record, we find that the debtor is capable of reorganization at this time and that there is evidence upon which a plan, predicated on a conservative new capitalization and meeting the requirements of section 77, may be promulgated."

The majority report, representing the view of Commissioners Mahaffie and Rogers, was accompanied by a brief dissent from Commissioner Miller. The latter thought the new capitalization should be $15,555,150 as proposed by the old preferred stockholders. He would have included in such capitalization $2,951,980 of "subordinate common stock" to be assigned to the old preferred stockholders. The dissenter conceded that there would be "little or no chance" of the subordinate common earning anything so long as the Rutland is operated independently; but "if consolidations of railroads alone, or with other modes of transportation, on a large scale are made, there probably would be good prospects of earnings thereafter for such stock."

I.C.C. Summarizes 1945 Accident Data

(*Continued from page 1094*)

with the exception of 1942 through 1944, inclusive, the same is true of fatalities. There were decreases in the number of man-hours worked (from 3,843 million in 1944 to 3,799 million in 1945), and in the frequency rate for employee fatalities per million man-hours, the 1945 figure being 0.235 as compared to 1944's 0,254. The frequency rate for non-fatal employees per million man-hours increased, however, from 12.32 in 1944 to 12.45 in 1945, thereby exceeding all previous figures.

With respect to injuries to employees, the bulletin makes the usual estimate of the monetary loss involved, on the basis of $6 per day per man. It calculates that 1,617,232 days were lost in 1945 as a result of non-fatal injuries to employees, and the resulting "loss" is put at $9,703,392. At the same rate of pay, the equivalent figure for earlier years was as follows: 1944, $8,492,592; 1943, $9,337,164; and 1942, $7,759,932.

In opposition to the trend of recent years, total casualties to trespassers increased in 1945. The year's fatalities among that class of persons totaled 1,537, as compared to the 1944 total of 1,491; and the non-fatal injuries to trespassers increased from 1,147 in 1944 to 1,164 in 1945. Trespasser fatalities per million motive-power miles (locomotive-miles and motor train-miles) were 0.88 in 1945 as compared to 0.82 in 1944; the injury rate on the same basis 0.66 as compared to 0.63.

More Crossing Accidents—The upward trend in the number of rail-highway grade-crossing accidents continued in 1945, when 4,100 were reported as compared to 3,811 in the previous year. The totals of persons killed were 1,903 in 1945 and 1,840 in 1944; of those injured, 4,446 in 1945 and 4,216 in 1944. At the same time, there was a reduction in the number of pedestrians killed but an increase in the number injured in crossing accidents, the total for 1945 being 259 killed and 157 injured as compared to 275 killed and 126 injured the previous year.

Passenger automobiles were involved in 63.17 per cent of the total number of grade-crossing accidents in 1945, or 0.11 points above the 1944 ratio. For 1941, the last pre-war year, the comparable figure was 70.25 per cent. Motor trucks were involved in 895 accidents with trains in 1945, as compared to 822 in 1944 and 864 in 1943.

In 1945, there were 21 employees on duty on trains killed as a result of accidents at highway grade crossings and 167 employees and 143 passengers injured. The comparable 1944 figures were, respectively, 19 killed, and 118 and 11 injured. Damage to railway property as a result of train accidents at highway grade crossings (not including damage less than $150 in any accident) totaled $699,668 in 1945 as compared to $382,565 in 1944.

Discussing train accidents (that is, those resulting from train operation in which railroad property damage exceeding $150 has occurred), the bulletin points out that the number per million motive-power units (locomotive-miles plus motor train-miles) was up from 1944, which was higher than in any year since 1929. The rates in recent years were 9.63 for 1945, 8.94 for 1944 and 8.87 for 1943. The recent low was 4.82 for 138. There were in all 16,892 train accidents in 1945, compared to 16,258 in 1944 and 16,061 in 1943. The 1945 total includes 4,789 collisions, 9,397 derailments and 23 locomotive boiler accidents.

A.T.A.'s Ted Rodgers Complains Again of Rail L.C.L. Rates

Making his usual year-end statement on December 21, Ted V. Rodgers, president of American Trucking Associations, registered again the trucking industry's complaint against railroad l.c.l. rates, reporting at the same time, however, that the truckers' net earnings for 1946 "improved somewhat in comparison with the lean war years and the near-disastrous year in 1945, after individual and territorial rate increases were authorized by the Interstate Commerce Commission."

"It is not yet clear, however," Mr. Rodgers went on, "that the commission has recognized the rate-making principles which are necessary for a stable future in motor transportation of less-truckload traffic Although increases have been granted in railroad rates, their less-than-carload rates with which motor carriers are competitive still are at depressed levels and are unprofitable to the railroads. The commission itself has found them to be non-compensatory.

"Correction of that situation would lead to greater stability among all the trans-

Selected Income and Balance-Sheet Items of Class I Steam Railways

Compiled from 129 reports (Form IBS) representing 133 steam railways
(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways: For the month of September 1946	For the month of September 1945	For the nine months of 1946	For the nine months of 1945
1. Net railway operating income	$67,362,518	$43,133,853	$365,611,064	$778,146,716
2. Other income	13,687,789	13,922,236	131,365,101	137,692,011
3. Total income	81,050,307	57,056,089	496,976,165	915,838,727
4. Miscellaneous deductions from income	2,521,936	3,592,480	21,919,199	24,052,820
5. Income available for fixed charges	78,528,371	53,463,609	475,056,966	891,785,907
6. Fixed charges:				
6-01. Rent for leased roads and equipment	9,635,100	10,646,027	88,898,313	109,073,285
6-02. Interest deductions[1]	27,400,207	30,720,242	262,215,931	281,084,804
6-03. Other deductions	129,733	113,952	1,098,226	1,003,412
6-04. Total fixed charges	37,165,040	41,480,221	352,212,470	391,161,501
7. Income after fixed charges	41,363,331	11,983,388	122,844,496	500,624,406
8. Contingent charges	2,293,788	2,927,637	26,279,510	29,459,982
9. Net income[2]	39,069,543	9,055,751	96,564,986	471,164,424
10. Depreciation (Way and structures and Equipment)	28,441,879	27,937,586	255,884,536	249,623,807
11. Amortization of defense projects	1,139,580	123,192,082	6,985,375	281,282,322
12. Federal income taxes	5,841,420	*38,592,284	44,330,803	702,320,988
13. Dividend appropriations:				
13-01. On common stock	15,161,926	4,602,992	119,093,578	104,012,595
13-02. On preferred stock	399,184	495,507	30,672,995	27,177,864
Ratio of income to fixed charges (Item 5÷6-04)	2.11	1.29	1.35	2.28

Selected Asset and Liability Items	All Class I Railways: Balance at end of September 1946	Balance at end of September 1945
17. Expenditures (gross) for additions and betterments—Road	$ 160,192,736	$ 167,480,372
18. Expenditures (gross) for additions and betterments—Equipment	212,918,733	210,364,942
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	580,020,695	541,853,327
20. Other unadjusted debits	174,084,897	177,562,151
21. Cash	1,036,303,906	1,147,719,137
22. Temporary cash investments	1,174,470,851	1,741,480,540
23. Special deposits	186,309,679	182,986,224
24. Loans and bills receivable	393,793	417,685
25. Traffic and car-service balances—Dr.	54,295,213	57,610,811
26. Net balance receivable from agents and conductors	121,645,466	119,084,705
27. Miscellaneous accounts receivable	316,546,233	600,569,574
28. Materials and supplies	640,468,940	605,929,254
29. Interest and dividends receivable	21,721,356	35,225,416
30. Accrued accounts receivable	166,083,218	247,927,531
31. Other current assets	32,364,249	55,630,020
32. Total current assets (items 21 to 31)	3,750,602,904	4,794,580,897
40. Funded debt maturing within 6 months[3]	97,615,614	248,168,820
41. Loans and bills payable	13,922,683	5,308,001
42. Traffic and car-service balances—Cr.	115,577,346	174,698,277
43. Audited accounts and wages payable	481,151,845	443,140,915
44. Miscellaneous accounts payable	178,084,540	192,228,365
45. Interest matured unpaid	58,128,288	74,432,952
46. Dividends matured unpaid	15,592,377	15,209,169
47. Unmatured interest accrued	62,344,222	59,717,822
48. Unmatured dividends declared	8,369,356	8,276,824
49. Accrued accounts payable	188,180,027	220,487,164
50. Taxes accrued	576,576,899	1,419,766,196
51. Other current liabilities	111,529,516	94,422,621
52. Total current liabilities (items 41 to 51)	1,809,457,099	2,707,688,306
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	417,333,808	1,247,278,820
53-02. Other than U. S. Government taxes	159,243,091	172,487,376
54. Other unadjusted credits	389,625,166	402,880,548

* Increase or deficit.
[1] Represents accruals, including the amount in default.
[2] After deduction of the following amounts to create reserves for land grant deductions in dispute: September 1946, $321,294; September 1945, $3,829,851; 9 months of 1946, $2,499,007; 9 months of 1945, $36,149,452.
[3] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

portation agencies and place competition on a basis of economy, efficiency and service, where it belongs, rather than on a cut-throat basis that is harmful to all carriers and the consumer, as well, and benefits no one. The importance of motor carriers as a part of our transportation system long has been established and was re-emphasized during World War II. Even before the war, Congress had directed fair and impartial regulation of all modes of transportation. But in order to accomplish the mandate of Congress, net earnings must be assured at a level high enough to provide for financial health of the motor carrier industry and to protect its place in the transportation scheme of the nation. Adequate earnings can come only from a fair rate structure founded on cost of service."

Meanwhile Mr. Rodgers had reported that the trucking industry in 1946 handled a heavier volume of freight than during the war years of 1944 and 1945, "despite labor difficulties, equipment shortages and general industrial confusion." In connection with the labor situation the A.T.A. president observed that "frequent and recurring" difficulties retarded "full recovery" by motor carriers from their financial troubles during the war years, during which period, he said, earnings approached the vanishing point and "in many cases actually did vanish."

Noting further that the A.T.A. went on record late this year favoring legislation in the 80th Congress which would provide "equality before the law for both management and labor," Mr. Rodgers said that the A.T.A. wants "no repressive labor legislation," but it does want to see management and labor given "equal opportunity and responsibility." Also, "it wants the legality of contracts firmly established, and wants secondary boycotts banned since such action involving motor transportation results in restraint of commerce."

Mr. Rodgers further reported that the A.T.A. and its 53 affiliated state associations have approved 1947 courtesy and safety campaigns. The former will stress courtesy and assistance by commercial vehicle drivers to others who need help on the road. The safety drive's slogan is "Safety Is No Accident," which was chosen from more than 5,000 entries in a campaign conducted by A.T.A.

Shipper Board Meeting

The Central Western Shippers Advisory Board will hold its 54th regular meeting on January 14-15, 1947, at the Hotel Martin, Sioux City, Iowa. This meeting was originally scheduled for December 12-15, but was postponed, due to the lack of transportation caused by the coal strike.

S. P. Settles Kentucky Taxes—May Leave State

The Southern Pacific last week settled by compromise back tax claims of approximately $4,000,000 assessed by the Kentucky Tax commission, payable on the company's intangible properties and franchise from 1944 to 1946, inclusive, and on income from dividends and interest from 1942 to 1945, inclusive.

Following disposition of the tax problems, Charles L. Minor, an attorney for the road, said that any proposal that the S. P. might remove its corporate office from Kentucky as a result of the settlement would be discussed at the cjompany's stockholders meeting next May. The line does not own any trackage in the state.

Representation of Employees

The Order of Railway Conductors defeated the Brotherhood of Railroad Trainmen, 937 to 606, thereby retaining its right to represent road conductors employed by the Southern Pacific (Pacific Lines), but the latter union supplanted the O. of R. C. as the representative of road conductors employed by the San Antonio, Uvalde & Gulf and also defeated District 50, United Mine Workers of America, 127 to 41, to retain its right to represent yardmen, conductors and brakemen employed by the River Terminal, according to the results of recent elections which have been certified by the National Mediation Board.

As the result of other elections involving employees who formerly were with-

out representation, yardmasters employed by the Norfolk Southern are now represented by the Railroad Yardmasters of America, and coach attendants employed by the New York, Chicago & St. Louis are now represented by the United Transport Service Employees, C. I. O. In another election, the Brotherhood of Locomotive Firemen & Enginemen defeated the Brotherhood of Locomotive Engineers, 45 to 41, to retain its right to represent locomotive engineers employed by the Bessemer & Lake Erie.

Approves Nickel Plate Control of Wheeling

(*Continued from page 1094*)

have launched to compel payment of accrued dividends. The commission's reply was that "if no judicial machinery exists for preserving the status quo pending the court's decision, we think we may not properly be asked to provide such relief by deferring determination of the issues presented to us." Later on, it expressed its view that the proposed acquisition "would be in the long-term best interest of the preferred stockholders."

Likewise did the commission reject the New York Central's petition requesting that it be included in the transaction for the purpose of protecting through routes and its present trackage arrangements with the Wheeling; and the granting of additional trackage rights and other assurances of access to certain undeveloped Ohio coal fields. With respect to the first of these matters, the commission imposed a general condition stipulating that the Wheeling, under Nickel Plate control, must "maintain and keep open all routes and channels of trade via existing junctions and gateways unless and until otherwise authorized by us."

N. Y. C. Proposals Deferred—As to existing N. Y. C.-Wheeling trackage rights arrangements, the commission determined from its reading of the agreements that the initiative as to cancellation rests with the N. Y. C. It added, however, that any N. Y. C. apprehension on the matter would seem to have been allayed by recent Supreme Court decisions establishing the commission's jurisdiction over abandonment of operation under lease or trackage rights (see *Railway Age* of May 4, page 928). The matter of N. Y. C. access to the coal fields in which it is interested was also found to be one which did not require determination at this time. The commission noted that service to such fields would require some new construction or extensions of lines, adding that when and if the necessary applications in that connection are filed "it will be appropriate to give consideration to the question whether, as a condition to our permission to construct, any grant of trackage rights to afford access by others to the new development should be required by us."

The disposition which the commission thus made of N. Y. C.'s request for assurances on this question amounted to adoption of the course which the Central had recommended with respect to the Pennsylvania's protest that service by the N. Y. C. at the coal fields involved would constitute an invasion of P. R. R. and Wheeling territory. The Central, as the report put it, "replied that in the situation herein presented the broad view of the requirements of a national transportation policy ought to prevail; and it suggests that the Pennsylvania will have ample opportunity to be heard when authority for construction that will be necessary in any case is requested. . . ."

In addition to the transfer-price, trusteeship, and open-route conditions mentioned in the foregoing, the commission's approval of the transaction will require that the Nickel Plate shall not sell, pledge or otherwise dispose of any Wheeling stock without prior commission approval; that no shares of Wheeling stock shall be redeemed, retired, or reacquired by that road, except through donation, unless upon commission approval; and that the usual labor-protection provisions be applied. Control of the Wheeling, of course, contemplates control of its subsidiary, the Lorain & West Virginia, and the report's findings include that road. They would also approve the control of Wheeling which C. & O. and Alleghany would acquire through the Nickel Plate. Finally, the report noted that Chairman Barnard, "being necessarily absent," did not participate in the disposition of the proceeding.

Railroading in 1946 Reviewed by Fletcher

(*Continued from page 1095*)

have approximately 63,000 new freight cars on order.

"The same situation in regard to materials also has affected delivery of new passenger cars. Class I railroads on November 1 had 2,413 new passenger cars on order. In the first 10 months this year, only 363 new units had been installed in service, of which 295 were cars used for the transportation of passengers.

"Ownership of steam locomotives this year reached its lowest point since 1900, while ownership of electric and Diesel-electric locomotives continued the upward trend of recent years. The number of steam locomotives owned on November 30 was 1,199 less than on December 31, 1945, but the number of electric and Diesel-electric locomotives owned increased by 405. Railroads installed 82 new steam locomotives in the first 11 months of 1946, contrasted with 398 new electric and Diesel-electrics. On December 1, they had 564 new locomotives on order, of which 65 were steam and 499 were electric and Diesel-electrics.

"Both capital expenditures and purchases of fuel, materials and supplies were affected by rising price levels in 1946. Capital expenditures in 1946 approximated $550,000,000 compared with $562,980,000 in 1945. About 55 per cent of the 1946 expenditures was for equipment and about 45 per cent for improvements to roadway and structures.

"Purchases of fuel, materials and supplies in 1946 amounted to about $1,600,000,000, an increase of 2 per cent above 1945 and an increase of 46 per cent over the average of the preceding 10 years. On a comparable price basis, however, purchases in 1946 were about 10 per cent below those in 1945."

Freight Car Loadings

Figures for loadings of revenue freight for the week ended December 21 were not available when this issue went to press.

Loading of revenue freight for the week ended December 14 totaled 828,787 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, December 14			
District	1946	1945	1944
Eastern	160,158	150,198	142,345
Allegheny	172,455	163,200	155,123
Pocahontas	61,323	55,476	39,519
Southern	138,194	124,874	120,760
Northwestern	90,134	86,989	87,759
Central Western	138,845	128,091	129,792
Southwestern	67,678	62,766	74,944
Total Western Districts	296,657	277,846	292,495
Total All Roads	828,787	771,594	750242
Commodities:			
Grain and grain products	54,364	54,513	44,678
Livestock	17,776	21,102	19,234
Coal	205,124	180,695	142,673
Coke	11,977	13,228	13,145
Forest products	42,941	33,070	39,409
Ore	12,406	9,974	11,115
Merchandise l.c.l.	124,132	116,672	102,229
Miscellaneous	360,067	342,340	377,759
December 14	828,787	771,594	750,242
December 7	729,084	776,376	793,156
November 30	660,911	803,774	807,836
November 23	806,585	716,556	768,338
November 16	917,124	800,534	863,992
Cumulative total, 50 weeks	39,877,057	40,724,298	42,060,447

In Canada.—Car loadings for the week ended December 14 totaled 74,396 cars as compared with 78,711 cars for the previous week and 69,873 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Revenue Cars Loaded	Total Cars Rec'd from Connections
December 14, 1946	74,396	36,307
December 15, 1945	69,873	36,086
Cumulative Totals for Canada:		
December 14, 1946	3,560,150	1,731,869
December 15, 1945	3,507,385	1,748,225

Daily Train Movies Begin on C. & O. January 7

The Chesapeake & Ohio has announced that nightly showings of feature motion pictures on regular passenger trains will begin January 7, 1947, with the inauguration of that form of entertainment on its "George Washington," operating between Newport News, Va., and Cincinnati, Ohio, following a premier presentation to invited guests on the train on January 6.

It was explained that the C. & O. has signed a one-year agreement for the showing of Universal-International releases in 16 millimeter films, with changes in programs each two weeks. Two projectors operated by a regular union motion picture projectionist will provide a continuous performance. The entertainment will be presented in specially adapted twin-unit dining cars arranged to seat 50 persons at a showing.

No charge is to be made to passengers for

the movie showings, and the announcement said that the service will be extended to other C. & O. trains as equipment becomes available. The daylight streamliners, the "Chessies," which will go in service next year between Washington and Cincinnati, will have this feature.

Suspends C. & D. Tariff with Strike Clause

The Interstate Commerce Commission has suspended from December 23 until July 23, 1947, joint agency tariffs whereby railroads in Official territory are undertaking to stipulate that they will not perform pick-up and delivery service at points where such operations are impracticable because of: (1) Inadequate loading or unloading facilities; (2) any riot, strike, picketing or other labor disturbance. The suspension order docketed the proceeding as I. & S. No. 5451 and assigned it for hearing at Washington, D. C., on January 28, 1947, before Examiner Weems. The suspended schedules are published in Supplements Nos. 27, 28 and 29 to W. S. Curlett's joint tariff I. C. C. No. A-829.

Shippers' Board to Forecast Frozen Food Shipments

Because of the increasing importance of frozen foods, the Pacific Northwest Shippers' Advisory Board, at its year-end quarterly meeting on December 13, at Aberdeen, Wash., authorized the appointment of a committee to compile forecasts of shipments of that commodity.

Speaking at the board's joint luncheon meeting with the Aberdeen Kiwanis Club, H. V. Simpson, executive vice-president of the West Coast Lumbermen's Association, termed the railroads and shippers "partners," and praised the former for their part in developing the Pacific Northwest lumber industry.

Ten Lines Lift Embargoes Against T. P. & W.

Ten railroads have lifted their embargoes against the strike-troubled Toledo, Peoria & Western, following the recent injunction issued by the Federal district court at Peoria, Ill., restraining all parties from interfering with the road's operation. (See *Railway Age* of December 14, page 1015.)

The T. P & W. has amended its embargo to permit the acceptance of carload shipments, except perishables and livestock, when originating at, or destined to or via, stations Cuba, Ill., to Effner, Ill.—Ind., or east thereof, a distance of 149 miles. The earlier ambargo had permitted only carload shipments, except perishables and livestock, between Peoria and Effner, a distance of 108 miles.

I. C. C. Accounting Orders

The Interstate Commerce Commission has made public a December 4 order wherein its Division 1 has modified the Uniform System of Accounts for Steam Railroads to prescribe new requirements in connection with accounting for depreciation on, and retirements of, leased properties. The order also prescribes a new reguation covering the accounting for past accrued depreciation on property acquired as a result of reorganization.

Another order, also dated December 4, prescribes for Class II and III roads a condensed version of the accounting classification applicable to Class I roads. This merely brings the requirements for all roads under the one classification, making no change in the regulations which have heretofore been applicable to Class II and III roads. Both orders become effective January 1, 1947.

I. C. Has Forestry Course

The Illinois Central, in a move to encourage new growth in depleted forest areas in Mississippi, is presently sponsoring an agricultural training program for high school students and lumbermen in that section. The course, now in progress at Morton, Miss., is being conducted by Charles Robertson, I. C. forestry agent, in cooperation with agricultural instructors at Morton high school.

Instruction includes the study of methods of planting and thinning trees, tree selection and marking and tallying timber. Trips to wood-lots and the showing of a motion picture, "There's More in Timber Than Trees," are a part of the program. A similar course was completed at Edwards, Miss., on December 6.

A list of current publications will be found on page 1107.

Supply Trade

The **Independent Pneumatic Tool Company** of Chicago, has announced a $1,000,000 expansion of its main plant at Aurora, Ill. Construction of the annex, which will provide 85,000 sq. ft. of additional floor space for production purposes, will begin shortly.

The **Union Asbestos & Rubber Co.** has announced the abolishment of the office of chairman of the board. **J. H. Watters,** president, will assume the duties formerly exercised by the chairman of the board. **John H. Balch,** formerly secretary and treasurer, has been elected executive vice-president, retaining the position of treasurer, and **Stephen S. Steel,** formerly assistant secretary, has been elected secretary.

Koppers Company has announced the following appointments in the wood preserving division: **Walter P. Arnold,** formerly manager of the technical department of the division, has been appointed assistant to the vice-president in charge of railroad sales, and **J. M. Irvine,** formerly district sales manager in New York, has been appointed assistant to the vice-president in charge of commercial sales, both with headquarters in Pittsburgh, Pa. **R. H. Bescher,** formerly a member of the technical staff of the division, has been appointed manager of the technical department, with headquarters in Orrville, Ohio.

Equipment and Supplies

LOCOMOTIVES

U. P. Orders 35 More Diesel Locomotives—Total 64

Union Pacific orders for 35 road Diesel-electric locomotives—7 passenger and 28 freight units—announced last week by G. F. Ashby, president, bringing that road's recent Diesel-electric locomotive orders to a total of 64 units, costing $22,000,000. Previous orders for 29 Diesel-electric switchers, at an estimated cost of $3,000,000, were reported in the *Railway Age* of December 21.

Comprising the largest Diesel locomotive order in railroad history, the 64 new units will afford complete Dieselization of the U. P. south of Salt Lake City, Utah, by the fall of 1947, Mr. Ashby stated. He said that, upon delivery of the locomotives, the road will have a total of 178 single Diesel units for freight and passenger traffic and 141 Diesel switch engines.

When all of this equipment is received, the Union Pacific will have—including the 45 units now in use on passenger trains and the 112 Diesel switchers now in service—a total of 421,500 hp. in Diesel-electric locomotives, Mr. Ashby said. "There will be 112,500 hp. in passenger service, 168,000 hp. in freight service and 141,000 hp. for switching activities."

The number of locomotives, type, manufacturer and expected 1947 date of delivery of the 35 additional units are as follows: Two 6,000-hp. passenger, of three 2,000-hp. units each, American Locomotive Company, with delivery in May; five 4,500-hp. passenger, of three 1,500-hp. units each, Electro-Motive Division of General Motors Corporation, with June delivery; 10 6,000-hp. freight, of four 1,500-hp. units each, Alco, April delivery; and 18 6,000-hp. freight, of four 1,500-hp. units each, Electro-Motive, September delivery.

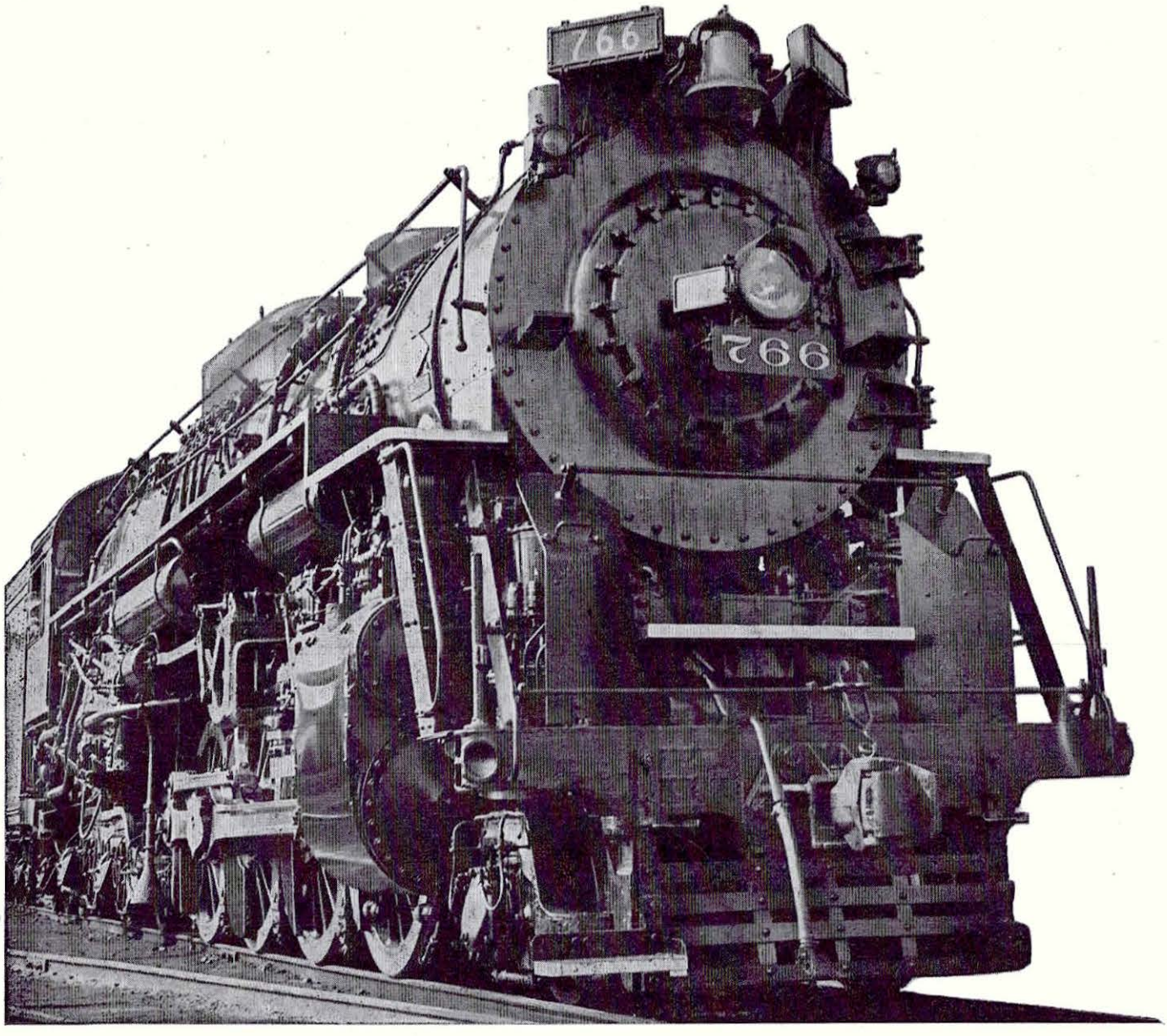
The CHICAGO GREAT WESTERN has ordered 6 three-unit 4,500-hp. Diesel-electric freight locomotives from the Electro-Motive Division of the General Motors Corporation. Delivery is scheduled for June, 1947.

The CONSOLIDATED RAILWAYS OF COLUMBIA has ordered 15 steam locomotives of the 4-8-2 type from the H. K. Porter Company. Construction of the new engines, to cost over $1,000,000, will start early next year.

The SOUTHERN PACIFIC has ordered 23 1,000-hp. Diesel-electric switching locomotives from the American Locomotive Company. The units, to be used in yard operations, are scheduled for delivery during January, February and March, 1947. A. T. Mercier, president of the S. P., said the new locomotives will bring the road's total of Diesel-electric switch engines to 153.

The POLISH STATE RAILWAYS, through the Steam Locomotive Export Association, has ordered 100 freight locomotives of the

News Department continued on next left-hand page



modern power **pays** dividends

The Nickel Plate has found that its fleet of 55 Lima-built 2-8-4s enables them to maintain the necessarily fast schedules required by today's freight demands . . . in addition, this progressive railroad realizes that high speed alone is not enough. Locomotives must be capable of moving a large volume of traffic.

During the past 5 years, this railroad has adopted the far-sighted policy of building up its locomotive power to enable it to handle maximum payloads at a maximum of efficiency and economy.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

2-10-0 type, 40 of which will be built by the Baldwin Locomotive Works, 40 by the American Locomotive Company and 20 by the Lima Locomotive Works. Delivery is scheduled to start in September, 1947, and it is expected that all will be ready for shipment before the end of the year. The *Railway Age* for March 2, page 481, reported that Poland was inquiring for a maximum of 500 locomotives of the 2-10-0 type.

FREIGHT CARS

The ONTARIO NORTHLAND has ordered 570 steel-sheathed, wood-lined 40-ton box cars from the National Steel Car Corporation, Hamilton, Ont.

SIGNALING

The BALTIMORE & OHIO is now installing a manually-controlled simplified electric interlocking at its crossing with the Chicago, Indianapolis & Louisville, at Mitchell, Ind.

The CHICAGO, INDIANAPOLIS & LOUISVILLE is installing an automatic electric interlocking at a crossing with the Pennsylvania at Gosport Junction, Ind. The construction is being handled by C. I. & L. forces with the cooperation of the Pennsylvania.

The SPOKANE, PORTLAND & SEATTLE has ordered materials from the General Railway Signal Company for the installation of absolute permissive block signaling between Vancouver, Wash., and Wishram, about 96 miles. Type-SA signals, Type-K relays, and welded steel cases will be used on this project.

The CHESAPEAKE & OHIO and the NEW YORK, CHICAGO & ST. LOUIS have jointly announced participation with the New York Central and the Baltimore & Ohio in a $700,000 project at Fostoria, Ohio, for the construction of an interlocking and signal system. The C. & O.'s share of the cost will be $165,000 and that of the Nickel Plate, $153,000. The remainder of the cost will be divided between the New York Central and the Baltimore & Ohio.

The TEXAS & NEW ORLEANS, Southern Pacific Lines, has placed an order with the Union Switch & Signal Co. for the necessary materials to install light signals to replace semaphore signals through the terminals at Houston, Tex., and Beaumont, in connection with the respacing of signals between Houston and the Sabine river. This involves searchlight signals, relays and rectifiers. The railway's forces will perform the work.

Financial

ALTON.—*Set Date for Appeal Arguments.*—The United States circuit court of appeals at Chicago has set January 7, 1847, as the date for oral arguments on the appeal from an order by Federal Judge John P. Barnes which removed two of three reorganization managers of this road. (See *Railway Age* of December 7, page 979.) The appeal was filed by counsel for the bondholders' protective committee for the 3 per cent Chicago & Alton refunding mortgage bonds, who contend that Judge Barnes is without the power under the reorganization plan to remove the two managers and to appoint two new ones. The court has stayed the removal order pending the hearing.

BALTIMORE & OHIO.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $3,310,000 of Series S equipment trust certificates, the proceeds of which will be applied toward the payment of $4,149,750 for 1,000 50-ton all-steel box cars which the applicant plans to purchase from the Pressed Steel Car Company at an estimated unit cost of $4,149. The certificates would be dated January 1, 1947, and would be sold on the basis of competitive bidding.

BOSTON & MAINE.—*Acquisition of Leased Line.*—Division 4 of the Interstate Commerce Commission has authorized this road to acquire the property and franchises of the Pemigewasset Valley, extending 21.4 miles from a connection with the B. & M. at Plymouth, N. H., to Lincoln, which it has operated under lease since 1895. The B. & M. will pay $231,979 for the line, an amount equivalent to $42.84 per share of the outstanding stock of the P. V., of which it owns approximately 76 per cent, as noted in *Railway Age*, September 28, page 540.

CHESAPEAKE & OHIO-PERE MARQUETTE.—*Merger.*—Oral argument on the proposed merger of the Pere Marquette into the Chesapeake & Ohio will be held January 10, 1947, at Washington, D. C., before Division 4 of the Interstate Commerce Commission. As noted in the *Railway Age* of November 2, conditional approval of the merger has been recommended by the commission's Bureau of Finance in a proposed report in the proceeding, which is Finance Docket No. 15228.

CHICAGO & NORTH WESTERN.—*Changed Dividend.*—This road has declared a dividend of $1 a share on the common stock, payable on December 31 to stockholders of record on December 23. The previous payment was $3 a share on December 22, 1945.

GEORGIA NORTHERN.—*Bonds.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue not exceeding $287,000 of first-mortgage 4 per cent bonds, and to procure the authentication and delivery of not exceeding $63,000 of like bonds. The bonds will mature December 1, 1971. A total of $283,000 will be sold or exchanged at par in connection with the redemption as of December 12 of a like amount of outstanding first-mortgage 6 per cent bonds. The remaining $4,000 of the issued bonds will be delivered in respect of a sinking fund payment due June 1, 1947. The additional $63,000 with respect to which the commission order authorizes only authentication and delivery at this time will be exchanged for a like principal amount of the 6 per cent bonds held in the applicant's treasury and to be retained there until further order of the commission.

GULF, MOBILE & OHIO.—*New Director.*—H. J. Lorber, president of Rollins Burdick Hunter Company, Chicago insurance firm, has been elected a member of the board of directors of this road, succeeding George Pecaro, who has resigned.

MISSOURI PACIFIC.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized the International-Great Northern, an affiliate of this road, to acquire for $150,000 the Rio Grande & Eagle Pass properties which consist of a 7-mile line between Laredo, Texas, and Farias and 1¼ miles of spur tracks. The purchaser plans to operate approximately 5 miles of the line and scrap the remainder. The commission has authorized the R. G. & E. P. to abandon the line.

PENNSYLVANIA.—*New Director.*—Harry B. Higgins, president of the Pittsburgh Plate Glass Company, has been elected a director of this road to succeed the late Arthur C. Dorrance.

ST. LOUIS-SAN FRANCISCO.—*Directors Approved.*—Federal District Judge George H. Moore, at St. Louis, Mo., last week approved the directors for this road as

* * *

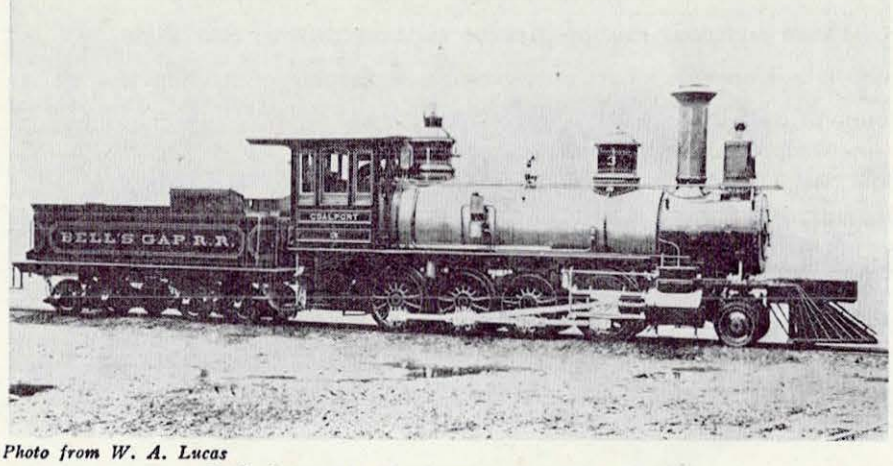
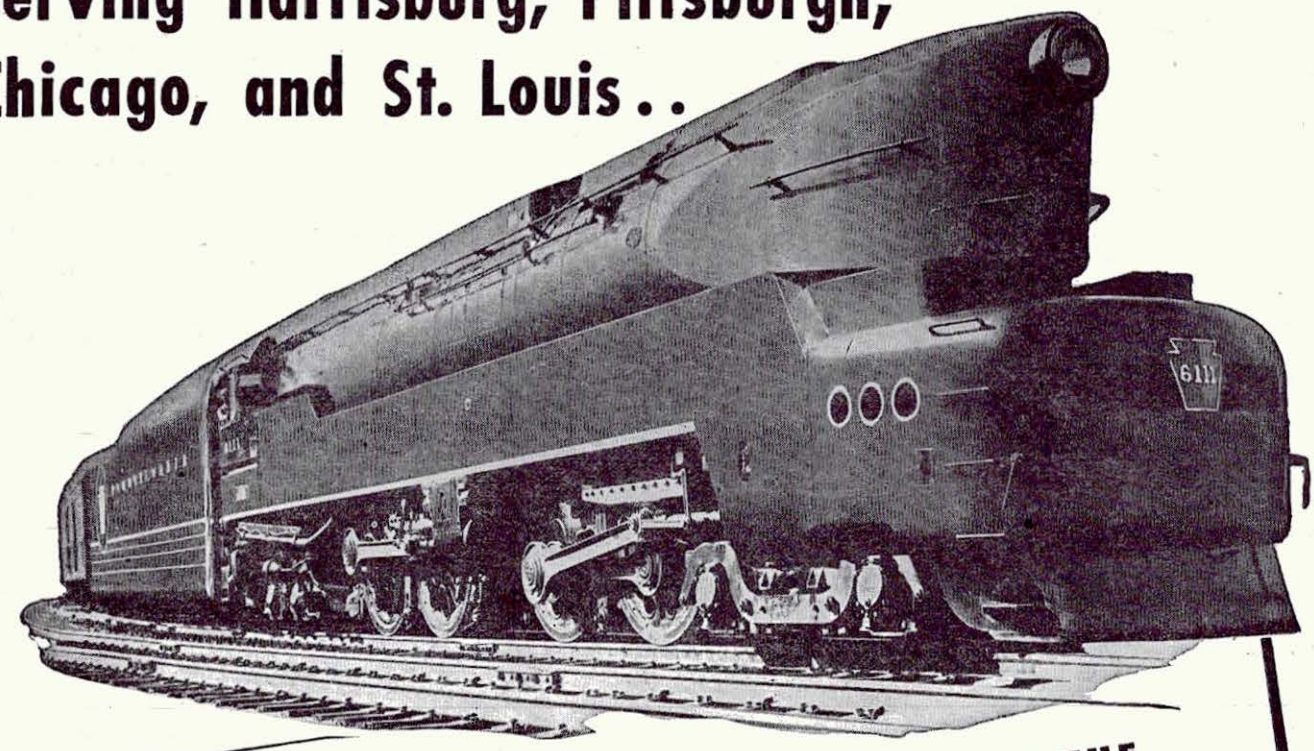


Photo from W. A. Lucas

Built in 1883 by the Grant Locomotive Works

News Department continued on next left-hand page

Serving Harrisburg, Pittsburgh, Chicago, and St. Louis..



THESE ARE THE TRAINS HANDLED BY LOCOMOTIVES EQUIPPED WITH THE

Franklin System of Steam Distribution

The Broadway Limited
The General
The Admiral
Manhattan Limited
Liberty Limited
The Trail Blazer
The Pennsylvanian
The Rainbow
Pennsylvania Limited
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The American
The New Yorker
The Metropolitan
The Jeffersonian
The St. Louisan
The Golden Triangle
The Clevelander
Cincinnati Limited
The Red Arrow
The Steel King
The Pittsburgher
The Sunshine Special
The Golden Arrow
The Duquesne
The Akronite
The Statesman
The Juniata

The 52 locomotives, Pennsylvania Class T1, are of the type that developed 6552 indicated horsepower on test; that achieved a water rate of 13.6 pounds at 76 mph, 20-per-cent cutoff; that produced nearly maximum power at 15-per-cent cutoff. They have consistently shown capacity to maintain speeds of 100 miles per hour, with trains of 14 and 16 cars, on test runs. In no small measure, the Franklin System of Steam Distribution has played a part in achieving these results.

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STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
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nominated by the board of reorganization managers. They are: Frank A. Thompson, newly elected chairman of the board of directors; Clark Hungerford, new president of the road; Daniel K. Catlin, a director of the Mississippi Valley Trust Company; Gale F. Johnston, president-elect of the Mercantile-Commerce Bank & Trust Company; Richard J. Lockwood, president, Title Insurance Corporation of St. Louis; Joseph R. Matthews, president Corno Mills Company; Isaac H. Orr, board chairman-emeritus, St. Louis Union Trust Company; Frank C. Rand, board chairman, International Shoe Company;—all of St. Louis; E. L. Bruce, Jr., president E. L. Bruce Company, Memphis, Tenn.; E. M. Dodds, president, U. S. Cold Storage Company, Kansas City, Mo.; Fred W. Ecker, New York, member of consolidated bondholders' committee; Hugh L. Harrell, vice-president, First National Bank, Oklahoma City, Okla.; B. S. Heddens, vice-president, First National Bank, Kansas City, Mo.; R. Otis McClintock, president, First National Bank, Tulsa, Okla.; David Roberts, Jr., president, Brilliant Coal Company, Birmingham, Ala.; and John W. Stedman, Newark, N. J., chairman, prior lien bondholders' committee.

SOUTHERN.—*Trackage Rights.*—This road has asked the Interstate Commerce Commission to issue an order authorizing the execution of a contract dated May 1 between the Southern and the Louisville & Nashville which would give the former trackage rights until November 3, 1956, over the L. & N.'s so-called Bennett's Fork and Stony Fork branches, 8.15 miles and 8.47 miles, respectively. The Southern has operated over the two segments, located in coal mining areas in the vicinity of Middlesboro, Ky., under various agreements and contracts since 1902.

Railway Officers

EXECUTIVE

T. T. Martin, assistant vice-president in charge of the industrial department, Gulf, Mobile & Ohio, at Mobile, Ala., will be advanced to vice-president, with the same headquarters, on January 1. **S. A. Dobbs,** vice president at St. Louis, Mo., will be transferred to Chicago on January 1. He will be succeeded by **R. E. Stevenson,** assistant to the president at Jackson, Tenn., who will carry the title of executive general agent. Succeeding Mr. Stevenson will be **C. B. Whitlow,** executive assistant at Jackson.

Leonard B. Allen, whose retirement as vice-president of the Chesapeake & Ohio at Cleveland, Ohio, was reported in the *Railway Age* of December 21, was born at Lexington, Ky., on April 19, 1879. Mr. Allen joined the Chesapeake & Ohio in 1899 soon after his graduation from the University of Kentucky with the degree of civil engineer. He served as resident engineer on construction, assistant engineer maintenance of way, division engineer, engineer maintenance of way, division superintendent, general superintendent and superintendent maintenance of way, successively, until 1926, when he was promoted to assistant to vice-president. From 1933 to May, 1940, Mr. Allen served as assistant

Leonard B. Allen

to executive vice-president of the C. & O., the New York, Chicago & St. Louis and the Pere Marquette, becoming assistant to president of those roads on the latter date. From April, 1943, to April, 1945, he served as assistant vice-president and assistant to president of the C. & O., becoming vice-president of that road in April, 1945, which position he held until his retirement.

C. S. Lake, whose retirement as assistant to the president of the Chesapeake & Ohio at Richmond, Va., was reported in the *Railway Age* of December 21, was born at Front Royal, Va., on May 27, 1870. He entered railroad service in 1884 as telegraph operator and assistant agent of the Shenandoah Valley (now Norfolk & Western), serving in various minor capacities with that road and the Richmond & Alleghany (now Chesapeake & Ohio) until 1887. Mr. Lake then served as train dispatcher for the Norfolk & Western and the Chesapeake & Ohio, successively, and from 1897 to 1902 he served as train dispatcher, night chief dispatcher, general yardmaster and assistant trainmaster of the Norfolk & Western. He was train dispatcher and trainmaster on the St. Louis, Iron Mountain & Southern (now Missouri Pacific), the Mississippi River & Bonne Terre (Missouri-Illinois) and the Chicago & Alton (Alton) from 1902 to 1903, going with the Southern in the latter year where he served successively as chief dispatcher, trainmaster and superintendent. From 1907 to 1912 Mr. Lake was superintendent on the New York, New Haven & Hartford, becoming general superintendent of the Minneapolis & St. Louis in the latter year. From 1914 to 1917 he served as general superintendent and general manager of the Seaboard Air Line and as special assistant to president of the Erie. He was assistant to director of operations and assistant to director general of railroads of the United States Railroad Administration from 1918 to 1920, becoming general manager of the Norfolk Southern in the latter year. In 1921 Mr. Lake became assistant to president of the Chesapeake & Ohio, holding that position until 1922. During 1922 he performed the duties of president of the St. Louis-Southwestern during the latter's illness. From 1922 to 1924 he was chairman of the board of the North & South (Illinois Central). In December, 1924, he was appointed special assistant to president of the Chesapeake & Ohio, subsequently serving as assistant to senior vice-president and assistant to president at Richmond.

William C. Hull, whose retirement as vice-president in charge of traffic of the Chesapeake & Ohio and the Pere Marquette at Cleveland, Ohio, was reported in the *Railway Age* of December 21, was born at Cincinnati, Ohio, on September 8, 1880. Mr. Hull entered railroad service in 1895 as a stenographer in the general freight office of the Baltimore & Ohio at Cincinnati, serving in that capacity until 1897. He then joined the C. & O. and served until 1918 successively as secretary to assistant freight traffic manager, chief clerk to vice-president, and assistant to vice-president in charge of traffic of the Chesapeake & Ohio and Hocking Valley. During World War

William C. Hull

I, when the railroads were operated by the government, he was assistant to the manager, inland fuel traffic, United States Railroad Administration, at Washington, D. C. From 1920 to 1928 Mr. Hull was assistant to vice-president in charge of traffic of the Chesapeake & Ohio, becoming assistant vice-president in charge of traffic of that road and the Hocking Valley in the latter year. In 1937 he was appointed vice-president in charge of traffic of the C. & O. and Pere Marquette, which positions he held until his retirement.

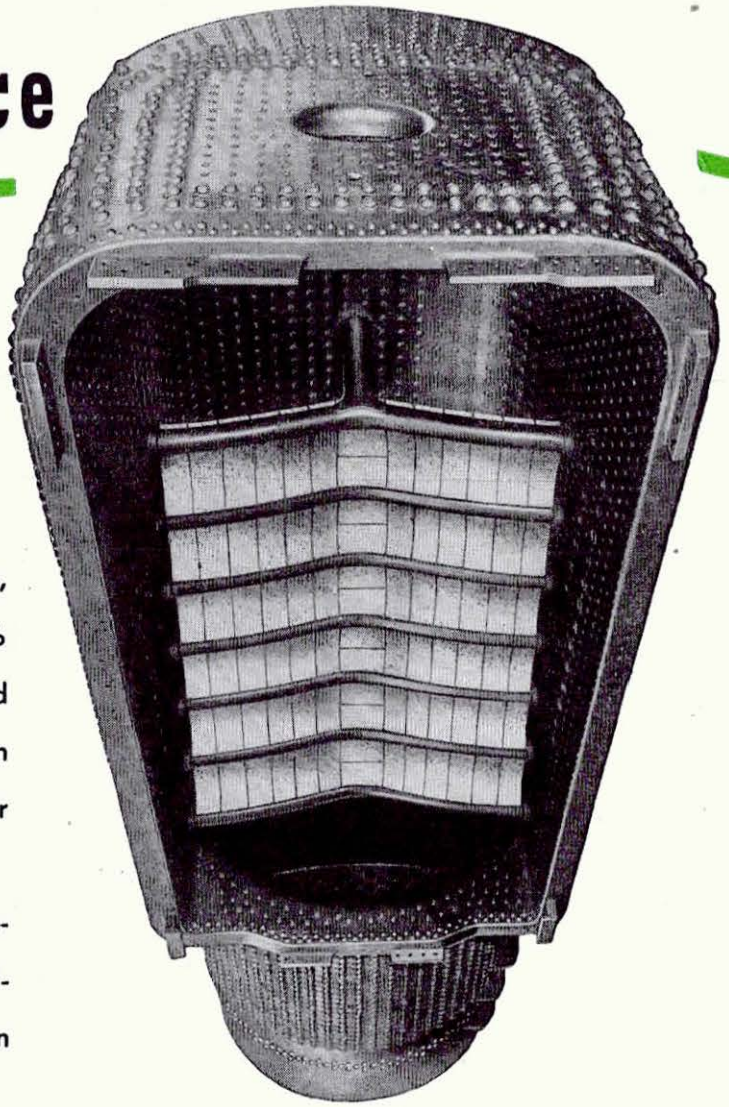
FINANCIAL, LEGAL AND ACCOUNTING

M. G. Mitchell, auditor of disbursements, St. Louis Southwestern of Texas, with headquarters at Tyler, Tex., has been appointed auditor and treasurer, with the same headquarters, succeeding **A. R. Wood,** whose recent death is reported elsewhere in this issue. Mr. Mitchell is succeeded by **W. H. Meyer.**

News Department continued on next left-hand page

A DEFINITE REDUCTION

. . . in boiler maintenance



The installation of Security Circulators, facilitating the maintenance of a 100% brick arch at all times, leads to improved combustion, with a marked decrease in honey-combing, flue plugging and cinder cutting.

This results not only in better locomotive performance and increased availability, but also in a worth-while reduction in the cost of boiler maintenance.

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SECURITY CIRCULATOR DIVISION

OPERATING

G. R. Kronblad has been appointed superintendent and agent of the Manufacturers' Junction Railway, with headquarters at Cicero, Ill., succeeding **R. D. Mason,** who has retired.

G. H. Sanderson has been appointed temporary trainmaster of the Laurentian division of the Canadian National, with jurisdiction over the Grand'mere, La Tuque and St. Tite subdivisions, with headquarters at Garneau, Que.

P. J. Weiland, trainmaster of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Portage, Wis., will be promoted to assistant division superintendent, with headquarters at Dubuque, Iowa, on January 1, succeeding **W. M. Thurber,** who will retire after 48 years of service. Mr. Weiland will be succeeded by **W. E. Swingle,** agent-trainmaster at Camp McCoy, Wis.

ENGINEERING & SIGNALING

Samuel L. McClanahan, division engineer of the Chicago, Rock Island & Pacific, with headquarters at El Reno, Okla., has retired.

J. C. Jacobson, chief draftsman of the Chicago, Rock Island & Pacific, at Chicago, has been appointed office engineer, with the same headquarters succeeding **S. T. Corey,** whose retirement was reported in the *Railway Age* of October 12.

Thomas C. Luke, communications supervisor of the Boston & Maine, has been appointed superintendent of telegraph, with headquarters at Boston, succeeding **Ralph R. Stackpole,** who died recently, following his retirement.

E. R. Murphy, assistant division engineer on the Electric division of the New York Central at New York, has been promoted to division engineer on the St. Lawrence, Adirondack and Ottawa divisions, with headquarters at Watertown, N. Y.

W. F. Zane, signal engineer of the Burlington Lines, at Chicago, has been appointed chief signal engineer, system, with the same headquarters. **A. L. Essman,** principal assistant signal engineer, at Chicago, has been appointed signal engineer, system, with the same headquarters. **T. W. Tizzard,** office engineer in the office of the signal engineer, at Chicago, has been appointed principal assistant signal engineer, system, with the same headquarters.

G. L. Smith, whose promotion to system engineer of track of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of December 14, was born at Southampton, England, on May 14, 1889, and received his higher education at University College, Southampton. He entered railroad service in October, 1910, as chairman on the Northern Pacific, and served as assistant engineer at various points until 1915, when he became rail and track inspector. In 1918 he was appointed assistant engineer of track, in which capacity he served until 1929, when he was advanced to engineer of track, the position he held at the time of his recent promotion.

H. R. Peterson, whose promotion to assistant chief engineer of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of December 14, was born at Minneapolis, Minn., on September 5, 1896, and was graduated by the University of Minnesota in 1918, with a B. S. degree in engineering. He entered railroad service in November of the latter year as a draftsman in the engineering department of the Northern Pacific, resigned on February 7, 1920, to accept private employment, and reeturned to the Northern Pacific in April, 1920, as a structural draftsman in the bridge department at St. Paul, Minn. During 1925 he served as an inspector on bridge construction; from 1926 to 1927 as resident engineer on new branch line construction at Orofino, Idaho; and, during 1928, as assistant engineer on grade separation projects at Yakima, Wash. From 1929 to

H. R. Peterson

1940 Mr. Peterson served as an assistant engineer in the bridge department, at St. Paul, on grade separation projects and special assignments, except that during 1936 and 1937 he was on special assignment to the Spokane, Portland & Seattle. On October 10, 1940, he was promoted to office engineer at St. Paul, and served in that capacity until April, 1944, when he was advanced to principal assistant engineer, with the same headquarters, the position he held at the time of his recent promotion.

Edward G. Stradling, superintendent of telegraph and signals of the Chicago, Indianapolis & Louisville, with headquarters at Lafayette, Ind., has retired at his own request, effective January 1. Mr. Stradling was born on September 5, 1880, at Indianapolis, Ind., and was graduated from Purdue University in mechanical engineering in June, 1905. He entered railway service in the fall of 1900 on the Baltimore & Ohio in connection with the relocation of mainline track in southern Indiana. During the summer of 1901, Mr. Stradling served in the engineering corps of the Missouri Pacific as a rodman with a location party in Arkansas. In September, 1905, he was employed by the General Railway Signal Company on construction work on various railroads. Between June, 1906, and February, 1908, he was employed by the Union Pacific as a foreman on signal construction work in Colorado and Wyoming. Mr. Stradling was appointed signal inspector of the Chicago, Indianapolis & Louisville on May 1, 1908, with headquarters at Lafayette. He was appointed signal engineer on May 1, 1911, and superintendent of telegraph and signals on May 1, 1920, the position he held at the time of his retirement.

J. E. Hoving, whose promotion to principal assistant engineer of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of December 14, was born at Fergus Falls, Minn., on November 30, 1899, and received his higher technical training at the University of Minnesota, from which he received the B. S. degree in civil engineering in 1927, and the M. S. degree in civil engineering in 1933. He entered railroad service on August 28, 1917, as a chainman in the engineering department of the Northern Pacific, at Staples, Minn., and served in that capacity and as rodman until September 26, 1918, when he entered the U. S. Army. Released from the armed forces on December 18, 1918, he returned to the Northern Pacific, and served as rodman and chainman at Duluth, Minn., and at Fargo, N. D., until August 31, 1923, when he matriculated at the University of Minnesota. From June 16, 1927, to September 15, 1932, he served successively as inspector, instrumentman, and rodman. After a year of graduate study at the University of Minnesota, he became service engineer for the Standards Equipment Company, at Chicago. In 1936 he served for two months as project engineer for the State Highway Commission of Montana, and then, on May 11, 1936, became engineer inspector for the U. S. Federal Emergency Public Works Administration in Minnesota. Mr. Hoving re-entered the service of the Northern Pacific on May 13, 1937, as assistant engineer of track, at St. Paul, Minn., and served in that capacity until June 1, 1942, when he became assistant engineer, at Fargo, whence he was transferred to Duluth on May 16, 1943. On April 16, 1944, he was appointed office engineer at St. Paul, the position he held at the time of his recent promotion.

TRAFFIC

Garnett King, assistant general passenger agent of the Southern Pacific, with headquarters at Oakland, Cal., will retire on December 31, after 47 years of railroad service.

R. M. Taliaferro has been appointed division freight agent of the Norfolk & Western, with headquarters at Winston-Salem, N. C., succeeding **S. A. Campbell,** retired. **B. F. Smith** has been appointed division freight agent at Norfolk, Va.

George E. Costello, acting steamship general agent for the Canadian Pacific at New York, has been appointed steamship general passenger agent at Vancouver, B. C., to succeed **J. J. Forster,** who will re-

News Department continued on next left-hand page

BETTER CONTROL OF *Slipping Drivers* with the THROTTLE MASTER

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A-1834 (3078)

tire on pension at the end of the year after 37 years of service. **F. L. McCloskey,** steamship general agent at Chicago, will succeed Mr. Costello at New York. **H. W. Eagle,** chief clerk in the steamship general passenger agent's office at Montreal, Que., has been appointed steamship general agent at Chicago.

Jacques Gross will become general agent of the Wheeling & Lake Erie and the Lorain & West Virginia, with headquarters at St. Louis, Mo., on January 1. He will succeed **Fred Allshouse,** who will retire on December 31.

E. O. McCord, assistant general freight and passenger agent of the Missouri-Kansas-Texas, with headquarters at Houston, Tex., has been appointed assistant freight traffic manager, a newly-created position, with headquarters at Dallas, Tex. The position of general freight agent—solicitation has been abolished, and Mr. McCord will have jurisdiction over solicitation matters. **W. P. Cox** has been appointed to the newly-created position of assistant freight traffic manager at Chicago. The position of assistant general freight agent has been abolished.

PURCHASES AND STORES

William H. Weymouth, chief fuel inspector of the Atchison, Topeka & Santa Fe at Arkansas City, Kan., has been appointed fuel agent, with headquarters at Chicago, succeeding **Charles H. Hoinville,** who has retired. **Weston P. Ayres** has been appointed acting chief fuel inspector at Arkansas City.

SPECIAL

A. F. Winkel, whose promotion to director of personnel of the Missouri-Kansas-Texas, with headquarters at Dallas, Tex., was reported in the *Railway Age* of December 14, was born on May 24, 1896, at St. Louis, Mo., and entered railroad service in 1915 as a stenographer in the accounting department of the Wabash. Mr. Winkel joined the Katy in 1916 as secretary to the

A. F. Winkel

vice-president, and in 1922 he was made assistant yardmaster at St. Louis. He was advanced to yardmaster at Fort Worth, Tex., in 1923, and in 1926 he became trainmaster at Denison, Tex. Mr. Winkel was promoted to assistant division superintendent at Denison in 1943, followed in 1945 by advancement to assistant superintendent of safety-rules examiner, at Dallas. He was further promoted to superintendent of safety on January 1, 1946, which position he held at the time of his recent appointment.

Delbert L. Wood, whose promotion to chief special agent of the Illinois Central, with headquarters at Chicago, was reported in the *Railway Age* of December 14, was born at Delavan, Minn., and was educated at Macalester College, St. Paul, Minn., and the St. Paul College of Law. Mr. Wood received a law degree from the latter col-

Delbert L. Wood

lege in 1939. He served six years as a special agent of the Federal Bureau of Investigation, completing assignments at Atlanta, Ga., and Washington, D. C. Prior to his recent appointment, Mr. Wood was associated with the Chicago office of the F. B. I.

C. A. Birge, Jr., whose promotion to superintendent of safety-rules examiner, of the Missouri-Kansas-Texas, with head-

C. A. Birge, Jr.

quarters at Dallas, Tex., was reported in the *Railway Age* of December 14, was born on October 1, 1899, at Lehigh, Okla. Mr. Birge studied law at the University of Oklahoma, and began his railroad career in 1912 as a messenger boy with the St. Louis-San Francisco. He served in the claim department of the Western Union Telegraph Company at New Orleans, La., and in 1918 he joined the Katy as an operator and student dispatcher at Oklahoma City, Okla. The following year he was promoted to dispatcher, holding that position and the position of night chief dispatcher successively at Oklahoma City, Parsons, Kan., Denison, Tex., and Waco. In 1927 he became chief dispatcher at Smithville, Tex., and in 1942 he was advanced to assistant division superintendent there. On February 1, 1946, Mr. Birge was promoted to assistant superintendent of safety-rules examiner, with headquarters at Dallas. He held this position at the time of his recent appointment.

Earl Oliver, Jr., chief clerk to the assistant to the vice-president of operations of the Chicago & North Western, has been appointed safety supervisor, with headquarters as before at Chicago.

OBITUARY

A. R. Wood, auditor and treasurer of the St. Louis Southwestern of Texas, with headquarters at Tyler, Tex., died recently.

William V. Moon, accounting engineer in the office of assistant comptroller of the Reading, died recently in the Roxborough Memorial hospital at Philadelphia, Pa.

F. A. Hansen, assistant general freight agent of the Chesapeake & Ohio, with headquarters at Chicago, died on November 28, at Benton Harbor, Mich., following a lengthy illness.

Eroy H. Anderson, manager stock yards and agricultural relations and general livestock agent of the New York Central system, with headquarters at Rochester, N. Y., died in that city on December 16 of a heart attack. Mr. Anderson was born in Hilton, N. Y., on February 1, 1882, and was graduated from New York State College of Agriculture, Cornell University, in 1908, receiving his M.S.A. degree in 1910. Entering the service of the New York Central on February 1, 1916, Mr. Anderson served as agricultural agent, superintendent of perishable freight investigations, superintendent of farm marketing investigations and supervisor of agriculture, successively. He was appointed manager agricultural relations on June 1, 1923, and was also appointed manager of stock yards on May 16, 1931. In addition Mr. Anderson was appointed general livestock agent on January 1, 1936.

PRIZES TO AMATEUR PHOTOGRAPHERS.—The Union Pacific will award $4,500 in prizes and trophies to 62 amateur photographers for photos of the "scenic West" submitted in its photographic contest, the road has announced. The pictures were limited to those taken during the summer of this year in the Utah-Arizona national parks, and included black and white photographs, still color prints and motion pictures. A $1,000 prize will be awarded in the latter group.

Table of Freight Operating Statistics appears on the next left-hand page

These chips speak Volumes for HSGI quality

Anyone who has been around railroad shops much can easily spot an HSGI casting when it is chucked on a machine. He knows it by the uniform quality and freedom from defects. Even the chips—always the same from casting to casting—say *HSGI* as unmistakably as though the iron were identified by a distinguishing yellow.

Shop men and mechanical officials everywhere recognize the advantages of using this superior material that shows such satisfying economies in the shop and on the road. Proof? Hunt-Spiller Gun Iron has enjoyed long-continued use by most of America's major railroads.

Hunt-Spiller are exclusive railroad sales representatives for Double Seal Piston Rings made for Diesel and other services. Double Seal rings are cast from Hunt-Spiller *Air Furnace* Gun Iron.

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Cylinder Bushings	Crosshead Shoes	Dunbar Sectional Type Packing
Cylinder Packing Rings	Hub Liners	Duplex Sectional Type Packing
Pistons or Piston Bull Rings	Shoes and Wedges	for Cylinders and Valves
Valve Bushings	Floating Rod Bushings	(Duplex Springs for Above
Valve Packing Rings	Light Weight Valves	Sectional Packing)
Valve Bull Rings	Cylinder Liners and Pistons for Diesel Service	Cylinder Snap Rings
		Valve Rings, All Shapes

Freight Operating Statistics of Large Steam Railways—Selected

Region, road, and year		Miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross excl. locos. & tenders	Ton-miles (thousands): Net-rev. and non-rev.	Road locos. on line: Serviceable: Unstored	Road locos. on line: Serviceable: Stored	Road locos. on line: B. O.	Road locos. on line: Per cent B. O.
New England Region:													
Boston & Albany	1946	362	147,061	160,454	20,993	3,403	66.3	212,632	88,261	61	...	27	30.7
	1945	362	144,471	159,759	22,646	3,406	67.3	212,030	89,833	61	5	25	27.5
Boston & Maine	1946	1,750	303,167	313,299	12,496	11,343	73.2	689,169	311,439	105	19	19	13.3
	1945	1,777	307,330	319,462	14,044	11,546	71.9	716,835	325,275	112	4	29	20.0
N. Y. New H. & Hartf.†	1946	1,820	359,788	494,487	41,033	14,450	73.8	831,568	371,683	196	13	56	22.8
	1945	1,815	373,963	517,953	46,334	14,910	73.5	858,370	381,045	206	31	36	15.1
Great Lakes Region:													
Delaware & Hudson	1946	846	290,452	352,001	35,624	12,453	68.9	896,907	489,803	110	64	36	17.1
	1945	846	271,780	329,774	35,625	11,683	68.1	833,321	445,289	126	71	26	11.7
Del., Lack. & Western	1946	971	285,728	326,235	39,313	12,413	73.5	791,648	377,885	106	28	39	22.5
	1945	971	314,114	352,187	44,717	13,502	71.7	872,028	416,001	114	36	52	25.7
Erie	1946	2,242	731,854	778,213	65,344	36,863	68.9	2,378,562	1,036,446	266	37	83	21.5
	1945	2,243	744,059	791,025	63,463	37,126	69.2	2,348,951	997,315	271	46	71	18.3
Grand Trunk Western	1946	972	267,680	277,217	1,994	9,108	68.2	575,261	256,657	68	1	7	9.2
	1945	1,026	256,126	263,036	1,869	7,829	68.8	513,473	237,176	60	2	13	17.3
Lehigh Valley	1946	1,242	290,742	324,625	50,296	13,235	73.3	881,740	452,930	117	18	34	20.1
	1945	1,242	333,840	370,628	50,223	14,140	66.8	997,476	501,308	128	29	12	7.1
New York Central	1946	10,328	3,096,442	3,318,978	232,231	116,436	64.8	7,982,707	3,753,969	988	37	337	24.7
	1945	10,331	3,037,251	3,280,406	231,684	111,169	63.3	7,690,023	3,549,576	973	75	343	24.7
New York, Chi. & St. L.	1946	1,656	538,569	543,396	6,685	22,165	70.6	1,406,013	649,011	139	6	31	17.6
	1945	1,656	590,187	600,865	7,852	23,657	70.4	1,481,496	662,362	142	28	23	11.9
Pere Marquette	1946	1,913	379,719	386,920	8,138	12,353	65.7	828,895	369,472	129	3	31	19.0
	1945	1,915	329,405	338,985	7,455	10,753	68.6	718,209	340,949	128	11	23	14.2
Pitts. & Lake Erie	1946	229	99,709	100,621	10	4,038	64.5	343,574	201,458	34	3	12	24.5
	1945	229	85,330	86,182	240	3,434	65.9	291,670	173,261	31	2	13	28.3
Wabash	1946	2,381	627,992	647,393	15,449	22,803	73.9	1,423,588	653,486	161	10	37	17.8
	1945	2,381	603,919	625,756	15,708	21,370	73.9	1,339,968	621,488	158	13	40	19.0
Central Eastern Region:													
Baltimore & Ohio	1946	6,103	1,996,322	2,473,706	274,652	69,843	65.7	5,093,597	2,594,251	821	21	327	28.0
	1945	6,095	2,095,395	2,612,995	287,330	73,375	63.3	5,428,168	2,723,790	886	48	238	20.3
Central of New Jersey†	1946	419	83,709	94,933	21,852	3,449	65.6	233,141	125,085	52	2	28	34.1
	1945	654	179,842	207,458	42,519	6,524	65.9	482,115	250,151	99	18	33	22.0
Central of Pennsylvania	1946	230	82,854	98,879	21,048	3,091	67.7	223,661	121,866	45	1	26	36.1
	1945	...	...	...	...	...	...	...	...	...	...	...	...
Chicago & Eastern Ill.	1946	910	185,800	187,863	3,727	5,626	71.0	377,468	191,628	56	...	22	28.2
	1945	912	192,512	194,507	4,853	4,985	66.1	342,552	166,491	60	10	7	9.1
Elgin, Joliet & Eastern	1946	391	113,572	118,021	3,795	3,534	67.7	268,066	144,581	42	1	21	32.8
	1945	392	99,481	103,677	3,405	3,012	68.7	227,616	102,161	42	8	25	33.3
Long Island	1946	372	44,728	46,520	16,007	541	59.5	36,792	14,951	39	...	...	4.9
	1945	372	44,887	46,474	15,210	619	54.8	42,405	15,370	48	...	7	12.7
Pennsylvania System	1946	10,033	3,919,233	4,527,050	601,210	156,737	67.8	11,000,027	5,583,979	1,869	65	280	12.6
	1945	10,024	3,812,504	4,490,085	634,599	152,525	65.2	10,834,232	5,383,962	1,935	97	191	8.6
Reading	1946	1,361	522,163	582,528	66,642	17,516	67.1	1,329,571	739,842	251	21	51	15.8
	1945	1,365	506,802	565,209	68,395	17,106	65.0	1,321,792	729,304	248	25	61	18.3
Pocahontas Region:													
Chesapeake & Ohio	1946	3,063	1,187,783	1,272,502	66,111	56,677	57.4	4,896,937	2,839,584	448	1	75	14.3
	1945	3,040	1,044,297	1,118,038	52,239	48,943	57.6	4,222,957	2,448,821	454	5	46	9.1
Norfolk & Western	1946	2,139	747,444	797,879	54,989	34,824	59.0	3,034,403	1,673,044	265	41	17	5.3
	1945	2,139	679,395	726,633	53,473	32,041	59.6	2,745,811	1,506,100	234	92	23	6.6
Southern Region:													
Atlantic Coast Line	1946	5,554	813,153	821,354	11,752	21,205	70.4	1,352,580	636,775	377	52	23	5.1
	1945	5,557	841,183	854,871	10,747	21,285	68.3	1,383,603	645,627	398	6	28	6.5
Central of Georgia†	1946	1,783	292,574	298,806	6,462	7,263	70.7	484,961	225,116	92	...	9	8.9
	1945	1,783	292,531	298,167	5,275	7,006	69.8	461,101	214,961	94	...	8	7.8
Gulf, Mobile & Ohio	1946	1,931	277,788	340,557	2,795	10,321	73.9	657,076	314,141	110	3	11	8.9
	1945	1,931	301,997	383,480	5,361	10,968	75.8	693,079	338,691	99	1	14	12.3
Illinois Central	1946	6,582	1,356,352	1,363,489	49,299	52,007	67.4	3,566,166	1,746,494	592	7	96	13.8
	1945	6,605	1,334,655	1,352,254	46,909	49,194	65.0	3,393,038	1,610,247	606	41	57	8.1
Louisville & Nashville	1946	4,750	1,452,689	1,578,575	43,714	38,494	63.9	2,761,346	1,424,626	383	18	72	15.2
	1945	4,745	1,410,964	1,528,087	40,479	37,276	63.7	2,677,429	1,374,974	390	35	56	11.6
Seaboard Air Line	1946	4,139	713,907	753,226	10,344	21,627	73.0	1,366,610	642,537	252	14	69	20.6
	1945	4,157	688,736	721,935	16,738	20,155	71.9	1,266,104	585,598	260	20	53	15.9
Southern	1946	6,450	1,989,128	2,021,286	35,215	46,480	72.3	2,930,106	1,365,935	597	...	103	14.7
	1945	6,471	1,872,627	1,904,876	32,731	43,280	70.1	2,748,350	1,278,034	604	14	105	14.5
Northwestern Region:													
Chi. & North Western	1946	8,062	1,101,791	1,148,486	29,723	36,111	69.1	2,426,541	1,029,163	384	...	132	25.6
	1945	8,062	1,116,728	1,165,621	30,784	36,136	66.1	2,444,575	1,138,284	389	30	109	20.6
Chicago Great Western	1946	1,445	259,225	261,160	10,851	8,060	69.2	534,114	239,375	66	...	13	16.5
	1945	1,445	260,933	264,896	11,801	8,524	74.2	538,533	245,780	71	...	10	12.3
Chi., Milw., St. P. & Pac.	1946	10,725	1,477,813	1,576,349	65,986	50,264	65.0	3,453,725	1,600,477	481	40	85	14.0
	1945	10,723	1,519,395	1,617,422	94,429	52,538	62.5	3,708,705	1,704,657	508	22	80	13.1
Chi., St. P., Minneap. & Om.	1946	1,606	218,598	235,663	14,788	5,847	70.8	397,584	187,697	80	...	42	34.4
	1945	1,606	206,620	221,011	11,918	5,623	72.2	376,249	179,636	89	4	31	25.0
Duluth, Missabe & I. R.	1946	547	157,188	158,111	1,024	8,505	50.9	786,486	480,208	46	...	3	6.1
	1945	546	159,091	160,065	1,772	8,774	51.4	811,545	498,448	46	...	2	4.2
Great Northern	1946	8,236	1,208,594	1,217,106	52,453	45,954	59.2	3,542,561	1,671,979	370	29	90	18.4
	1945	8,275	1,101,406	1,100,749	41,053	45,616	64.2	3,365,365	1,676,611	393	47	48	9.8
Minneap., St. P. & S. St. M.	1946	4,181	522,213	535,390	9,142	14,668	59.8	1,083,151	504,711	132	...	13	9.0
	1945	4,259	504,467	515,072	8,909	14,270	60.9	1,051,573	498,474	130	1	14	9.7
Northern Pacific	1946	6,624	976,755	1,040,553	64,703	36,104	63.6	2,644,420	1,142,672	365	6	59	13.7
	1945	6,577	983,802	1,050,758	75,065	39,939	71.3	2,689,395	1,331,754	383	9	57	12.7
Central Western Region:													
Alton†	1946	915	179,027	181,485	613	5,656	70.5	371,096	164,806	64	18	28	25.5
	1945	915	232,388	241,950	352	5,914	69.4	391,150	191,513	69	5	8	9.8
Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1946												
	1945	13,084	2,792,978	2,953,659	159,356	104,513	71.7	6,590,174	2,719,709	757	63	154	15.0
	1945	13,113	2,886,419	3,043,272	139,741	104,870	69.7	6,738,146	2,777,528	868	57	105	10.3
Chi., Burl. & Quincy	1946	8,671	1,391,082	1,440,832	52,347	51,579	62.5	3,624,804	1,604,082	438	34	70	12.9
	1945	8,768	1,366,205	1,427,406	59,797	52,087	63.8	3,618,055	1,646,698	436	...	81	15.7
Chi., Rock I. & Pac.†	1946	7,620	1,159,029	1,189,327	18,322	36,182	66.1	2,416,122	1,092,254	305	25	98	22.9
	1945	7,716	1,310,052	1,347,415	17,499	39,275	68.2	2,578,857	1,177,685	356	...	99	21.8
Denver & R. G. Wn.†	1946	2,386	425,918	470,797	62,151	13,270	73.9	848,834	400,899	166	5	38	18.2
	1945	2,386	462,934	513,733	71,356	16,012	77.1	982,035	453,709	163	4	50	23.0
Southern Pacific Company	1946	8,154	2,330,886	2,637,133	458,283	90,869	69.6	5,975,627	2,518,706	799	1	206	20.5
	1945	8,178	2,073,855	2,390,187	410,677	89,889	71.2	5,715,940	2,400,170	771	...	170	18.1
Union Pacific	1946	9,775	3,037,660	3,179,675	240,047	110,662	64.6	7,353,064	2,948,789	753	39	103	11.5
	1945	9,778	3,104,109	3,275,206	272,374	118,657	70.9	7,424,050	3,306,222	820	37	86	9.1
Southwestern Region:													
Mo.-Kans.-Texas Lines	1946	3,241	480,001	491,461	8,743	13,960	67.7	901,660	399,794	115	...	49	29.9
	1945	3,241	495,380	507,550	10,049	13,253	65.1	878,280	387,876	140	11	15	9.0
Missouri Pacific†	1946	7,053	1,376,347	1,433,485	34,228	45,438	69.6	3,001,674	1,379,220	428	4	71	14.1
	1945	7,056	1,411,795	1,474,330	38,246	49,134	67.4	3,288,724	1,504,670	432	1	84	16.2
Texas & Pacific	1946	1,871	346,858	346,858	7,258	11,199	66.2	740,990	309,512	103	45	5	3.3
	1945	1,871	356,691	356,844	6,207	11,648	65.7	776,880	324,211	133	24	9	5.4
St. Louis-San Francisco†	1946	4,615	921,750	961,609	11,028	22,160	69.3	1,467,037	674,272	308	3	30	8.8
	1945	4,615	1,046,306	1,104,811	14,400	25,024	65.4	1,710,517	774,845	318	...	32	9.1
St. Louis-San Fran. & Texas	1946	156	29,525	30,443	8	487	72.3	31,568	14,190	10	...	...	...
	1945	161	31,563	33,850		500	67.4	34,191	14,579	6	...	1	14.3
St. Louis Southwestern Lines	1946	1,568	328,673	330,164	4,504	13,307	80.8	770,710	344,518	84	26	25	18.5
	1945	1,600	315,550	319,005	4,289	11,280	73.1	677,143	302,692	96	16	30	21.1
Texas & New Orleans	1946	4,321	911,777	912,757	12,390	24,840	73.6	1,572,754	725,025	217	1	47	17.7
	1945	4,321	843,576	844,883	18,211	23,530	70.4	1,515,182	674,048	234	6	41	14.6

† Report of trustee or trustees.

Items for the Month of September 1946 Compared with September 1945

Region, road, and year		Freight cars on line: Home	Foreign	Total	Per Cent B. O.	G.t.m. per train-hr. excl.locos. and tenders	G.t.m. per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd. car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Coal lb. per 1000 g.t.m. inc. loco.	Mi. per loco. per day
New England Region:														
Boston & Albany	1946	290	5,537	5,827	0.5	22,117	1,456	604	25.9	525	30.6	8,127	192	76.7
	1945	302	5,147	5,449	0.4	23,331	1,481	627	26.4	555	31.2	8,272	191	74.2
N. Y., New H. & Hartft	1946	1,734	11,299	13,033	2.9	34,160	2,280	1,030	27.5	797	39.6	5,932	102	82.7
	1945	1,940	10,788	12,728	1.9	35,872	2,339	1,061	28.2	825	40.7	6,102	101	81.7
Boston & Maine	1946	1,798	20,940	22,738	2.2	31,203	2,322	1,038	25.7	570	30.0	6,807	90	71.9
	1945	2,227	18,716	20,943	4.5	32,268	2,302	1,022	25.6	621	33.0	6,998	85	77.0
Great Lakes Region:														
Delaware & Hudson	1946	2,336	7,567	9,903	3.1	53,975	3,107	1,696	39.3	1,680	61.9	19,299	100	65.6
	1945	3,227	6,248	9,475	4.9	53,573	3,085	1,648	38.1	1,507	58.1	17,545	100	58.0
Del., Lack. & Western	1946	4,157	14,364	18,521	3.6	40,604	2,826	1,349	30.4	716	32.0	12,972	108	79.6
	1945	5,323	10,903	16,226	3.9	42,509	2,806	1,339	30.8	860	38.9	14,281	109	71.7
Erie	1946	5,876	28,898	34,774	2.6	52,552	3,276	1,427	28.1	961	49.7	15,410	92	80.1
	1945	9,583	26,990	36,573	4.3	52,274	3,184	1,352	26.9	922	49.6	14,821	92	79.2
Grand Trunk Western	1946	3,963	10,245	14,208	6.3	42,609	2,161	964	28.2	604	31.5	8,802	86	133.4
	1945	3,231	7,199	10,430	7.2	41,530	2,015	931	30.3	759	36.4	7,706	85	124.4
Lehigh Valley	1946	4,634	12,561	17,195	4.3	51,027	3,142	1,614	34.2	827	33.0	12,156	103	78.1
	1945	6,115	16,135	22,250	4.9	50,881	3,087	1,551	35.5	711	30.0	13,454	98	87.9
New York Central	1946	46,362	106,566	152,928	4.0	40,193	2,615	1,230	32.2	826	39.6	12,116	102	96.7
	1945	48,339	90,916	139,255	4.6	40,491	2,572	1,187	31.9	853	42.3	11,453	105	94.4
New York, Chi. & St. L.	1946	2,269	13,051	15,320	2.0	50,181	2,621	1,210	29.3	1,412	68.2	13,063	83	111.2
	1945	2,688	12,624	15,312	3.3	48,385	2,519	1,126	28.0	1,451	73.6	13,333	87	109.9
Pere Marquette	1946	3,451	13,829	17,280	3.9	37,539	2,196	979	29.9	722	36.8	6,438	93	88.4
	1945	3,566	8,295	11,861	5.7	39,067	2,195	1,042	31.7	918	42.2	5,935	90	77.6
Pitts. & Lake Erie	1946	2,677	10,309	12,986	3.5	51,876	3,458	2,028	49.9	549	17.1	29,324	93	71.9
	1945	3,908	9,416	13,324	4.4	51,036	3,427	2,036	50.5	440	13.2	25,220	76	65.8
Wabash	1946	5,303	14,146	19,449	3.5	44,420	2,288	1,050	28.7	1,087	51.3	9,149	107	111.6
	1945	6,784	12,346	19,130	5.0	43,817	2,238	1,038	29.1	1,104	51.4	8,701	110	105.9
Central Eastern Region:														
Baltimore & Ohio	1946	36,815	52,090	88,905	4.5	31,968	2,607	1,328	37.1	964	39.5	14,169	143	81.8
	1945	41,885	56,906	98,791	5.1	31,763	2,653	1,331	37.1	964	40.6	14,896	142	85.2
Central of New Jersey†	1946	1,136	10,045	11,181	4.4	35,659	2,883	1,547	36.3	382	16.1	9,951	134	70.8
	1945	3,840	13,568	17,408	7.2	31,939	2,783	1,444	38.3	477	18.9	12,750	115	70.5
Central of Pennsylvania	1946	1,177	4,049	5,226	8.7	31,806	2,797	1,524	39.4	758	28.4	17,662	126	64.6
	1945	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicago & Eastern Ill.	1946	1,893	4,319	6,212	5.0	36,323	2,053	1,042	34.1	1,040	43.0	7,019	111	85.9
	1945	2,268	3,891	6,159	6.6	32,086	1,821	885	33.4	893	40.5	6,085	122	88.4
Elgin, Joliet & Eastern	1946	7,238	9,209	16,447	2.1	19,773	2,500	1,348	40.9	297	10.7	12,326	127	91.2
	1945	8,242	5,864	14,106	3.1	19,245	2,397	1,076	33.9	243	10.5	8,687	127	67.5
Long Island	1946	50	5,930	5,980	.5	6,858	851	346	27.6	83	5.0	1,340	349	71.2
	1945	20	5,627	5,647	.3	7,960	966	350	24.8	95	7.0	1,377	278	55.2
Pennsylvania System	1946	120,244	127,617	247,861	8.6	38,053	2,903	1,473	35.6	752	31.2	18,552	120	83.9
	1945	117,683	122,911	240,594	5.9	39,369	2,932	1,457	35.3	754	32.8	17,904	117	83.4
Reading	1946	9,331	24,914	34,245	2.4	34,079	2,552	1,420	42.2	732	25.8	18,120	105	77.1
	1945	11,623	22,719	34,342	2.7	34,083	2,611	1,441	42.6	707	25.5	17,810	107	72.8
Pocahontas Region:														
Chesapeake & Ohio	1946	34,865	22,358	57,223	1.7	58,989	4,220	2,447	50.1	1,623	56.4	30,902	73	92.3
	1945	37,307	18,346	55,653	2.2	59,582	4,096	2,375	50.0	1,468	51.0	26,851	73	82.6
Norfolk & Western	1946	23,178	8,144	31,322	.9	65,204	4,112	2,267	48.0	1,779	62.7	26,072	85	95.9
	1945	26,492	6,738	33,230	2.8	65,514	4,100	2,249	47.0	1,457	52.0	23,470	82	86.0
Southern Region:														
Atlantic Coast Line	1946	7,746	17,477	25,223	5.4	27,124	1,665	784	30.0	826	39.1	3,822	115	66.6
	1945	8,743	19,860	28,603	1.7	26,645	1,657	773	30.3	805	38.8	3,873	121	70.2
Central of Georgia†	1946	1,318	6,419	7,737	1.2	30,684	1,662	772	31.0	972	44.3	4,209	130	109.2
	1945	1,720	6,855	8,575	1.6	29,514	1,579	736	30.7	843	39.3	4,019	134	106.1
Gulf, Mobile & Ohio	1946	1,370	5,114	6,484	1.2	41,511	2,372	1,134	30.4	1,521	67.6	5,423	97	93.2
	1945	2,231	7,730	9,961	.5	40,139	2,303	1,125	30.9	1,119	47.8	5,847	110	119.5
Illinois Central Railroad Co.	1946	13,255	34,759	48,014	1.4	44,799	2,693	1,319	33.6	1,153	50.9	8,845	104	72.5
	1945	19,634	28,366	48,000	1.0	42,173	2,619	1,243	32.7	1,063	50.0	8,126	110	70.0
Louisville & Nashville	1946	23,950	15,918	39,868	4.0	29,850	1,901	981	37.0	1,190	50.3	9,997	123	119.3
	1945	29,543	15,529	45,072	5.7	30,001	1,898	974	36.9	1,015	43.2	9,659	130	114.3
Seaboard Air Line	1946	5,374	16,704	22,078	1.9	33,671	1,955	919	29.7	958	44.1	5,175	113	84.3
	1945	6,113	15,897	22,010	1.7	31,796	1,868	864	29.1	904	43.3	4,696	122	81.9
Southern	1946	13,806	32,657	46,463	5.0	25,599	1,494	696	29.4	961	45.2	7,059	139	102.8
	1945	15,292	32,993	48,285	4.0	25,421	1,490	693	29.5	903	43.6	6,583	141	94.4
Northwestern Region:														
Chi. & North Western	1946	20,448	39,742	60,190	3.3	33,345	2,324	986	28.5	569	28.9	4,255	121	82.9
	1945	22,694	37,419	60,113	3.5	33,206	2,296	1,069	31.5	659	31.6	4,706	118	82.3
Chicago Great Western	1946	1,059	4,811	5,870	6.0	36,050	2,063	925	29.7	1,373	66.8	5,522	119	120.8
	1945	1,172	4,750	5,922	4.1	36,464	2,079	949	28.8	1,429	66.8	5,670	120	119.0
Chi., Milw., St. P. & Pac.	1946	19,595	40,913	60,508	1.7	36,604	2,364	1,095	31.8	903	43.6	4,974	114	98.0
	1945	23,578	37,253	60,831	1.9	37,533	2,464	1,133	32.4	943	46.5	5,299	111	101.4
Chi., St. P., Minneap. & Om.	1946	1,044	7,605	8,649	6.2	23,695	1,889	892	32.1	743	32.7	3,896	110	73.5
	1945	904	7,005	7,909	7.1	24,361	1,890	902	31.9	750	32.5	3,728	104	65.4
Duluth, Missabe & I. R.	1946	14,509	530	15,039	2.8	85,136	5,175	3,160	56.5	1,092	38.0	29,263	62	123.3
	1945	14,554	482	15,036	3.2	88,985	5,275	3,240	56.8	1,114	38.1	30,430	63	130.4
Great Northern	1946	19,558	31,067	50,625	2.9	43,956	2,964	1,399	36.4	1,182	54.8	6,767	91	92.9
	1945	19,990	21,376	41,366	2.7	47,367	3,078	1,533	36.8	1,285	54.5	6,754	86	84.6
Minneap., St. P. & S. St. M.	1946	4,844	11,695	16,539	4.8	34,624	2,102	980	34.4	1,132	55.0	4,024	90	140.9
	1945	5,910	10,405	16,315	2.5	35,124	2,105	998	34.9	1,065	50.1	3,901	89	124.2
Northern Pacific	1946	15,246	21,797	37,043	3.3	42,811	2,729	1,179	31.6	1,061	52.7	5,750	126	93.0
	1945	15,949	21,983	37,932	4.7	41,356	2,777	1,375	33.3	1,149	48.3	6,750	121	90.9
Central Western Region:														
Alton†	1946	1,218	5,273	6,491	1.5	36,547	2,099	932	29.1	758	36.9	6,004	106	60.2
	1945	2,668	6,394	9,062	.8	38,518	1,700	832	32.4	716	31.8	6,977	115	106.3
Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1946	38,726	41,123	79,849	4.7	46,630	2,369	978	26.0	1,111	59.6	6,929	103	114.2
	1945	41,182	43,806	84,988	4.7	42,813	2,349	968	26.5	1,067	57.8	7,060	110	107.9
Chi., Burl. & Quincy	1946	16,675	28,287	44,962	2.7	44,013	2,619	1,159	31.1	1,177	60.6	6,166	102	96.6
	1945	17,201	28,040	45,241	3.0	42,554	2,660	1,210	31.6	1,216	60.3	6,260	99	101.6
Chi., Rock I. & Pac.†	1946	8,515	25,067	33,582	3.8	37,812	2,095	947	30.2	1,074	53.8	4,778	99	98.0
	1945	10,718	24,040	34,758	4.0	34,231	1,984	906	30.0	1,143	55.9	5,088	109	104.8
Denver & R. G. Wn.†	1946	6,478	7,556	14,034	4.9	33,262	2,005	947	30.2	935	41.9	5,601	165	90.8
	1945	7,622	8,373	15,995	4.4	33,208	2,139	988	28.3	946	43.3	6,338	168	94.5
Southern Pacific Company	1946	22,553	50,518	73,071	2.5	38,659	2,601	1,096	27.7	1,152	59.7	10,296	105	110.4
	1945	23,518	59,784	83,302	2.8	36,736	2,780	1,167	26.7	925	48.7	9,783	105	104.9
Union Pacific	1946	22,248	45,083	67,331	2.8	48,777	2,458	986	26.6	1,481	86.1	10,056	126	131.8
	1945	26,127	43,047	69,174	3.3	47,382	2,463	1,097	27.9	1,503	76.1	11,271	123	129.1
Southwestern Region:														
Mo.-Kans.-Texas Lines	1946	1,616	8,060	9,676	1.0	35,222	1,888	837	28.6	1,308	67.4	4,112	79	106.1
	1945	1,360	6,375	7,735	.2	32,543	1,779	786	29.3	1,518	79.7	3,989	84	109.1
Missouri Pacific†	1946	15,838	28,242	44,080	1.5	39,071	2,196	1,009	30.4	1,031	48.8	6,518	106	103.5
	1945	14,358	22,325	36,683	1.7	38,674	2,345	1,073	30.6	1,329	64.4	7,108	106	103.5
Texas & Pacific	1946	1,027	6,840	7,867	1.7	44,070	2,152	899	27.6	1,288	70.4	5,514	85	81.5
	1945	1,720	6,521	8,241	2.4	42,176	2,193	915	27.8	1,235	67.6	5,776	89	79.5
St. Louis-San Francisco†	1946	4,266	13,929	18,195	2.1	32,426	1,600	736	30.4	1,196	56.7	4,870	125	100.8
	1945	6,842	15,261	22,103	1.8	31,498	1,647	746	31.0	1,164	57.5	5,597	127	112.1
St. Louis-San Fran. & Texas	1946	...	287	287	1.7	22,106	1,071	481	29.1	1,798	85.4	3,032	122	97.8
	1945	...	360	360	1.9	21,463	1,086	463	29.2	1,455	74.1	3,018	115	143.5
St. Louis Southwestern Lines	1946	1,120	5,390	6,510	3.7	45,561	2,350	1,051	25.9	1,753	83.9	7,324	77	88.1
	1945	1,111	5,170	6,281	2.3	37,004	2,156	964	26.8	1,548	78.9	6,306	85	80.5
Texas & New Orleans	1946	3,318	15,828	19,146	3.8	32,903	1,740	802	29.2	1,241	57.8	5,593	87	123.9
	1945	3,739	16,777	20,516	4.4	32,853	1,815	807	28.6	1,079	53.5	5,200	89	107.3

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

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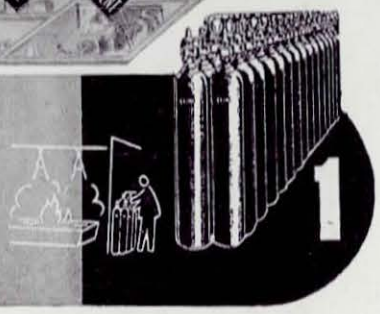

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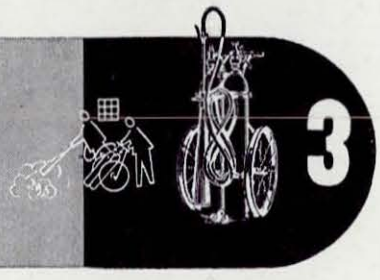

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Current Publications

Books

Men of Erie; A Story of Human Effort, by Edward Hungerford. 346 pages, illustrations. Published by Random House, 457 Madison Ave., New York 22, N. Y. Price, $3.75.

The story of the Erie, and the men who built it, plundered it, and have now regenerated it, told in a breezy anecdotal style.

Car Builders' Cyclopedia of American Practice, edited by Roy V. Wright and staff. Seventeenth edition, 1444 pages, illustrations, drawings. Published by the Simmons-Boardman Publishing Corp., 30 Church st., New York 7, N. Y. Price, $6.00.

This well-known work, now in its seventeenth edition, contains definitions and typical illustrations and drawings of railroad and industrial cars, their parts and equipment; descriptions and illustrations of shops and equipment employed in car construction and repair.

Terminal Airport Financing & Management, by Lynn L. Bollinger, Alan Passen and Robert E. McElfresh. 386 pages, non-illustrated. Published by the Harvard Business School, Division of Research, Boston, Mass. Price, $4.25.

This is the report of an 18-month study of airports throughout the United States, in which the authors discuss the management practices necessary to make terminal-type airports self-supporting. They recommend aggressive development of terminal concessions and other similar "non-aviation" revenue sources, and the formation of joint non-profit terminal management corporations similar to those employed by the railroad industry to operate union stations or joint yards.

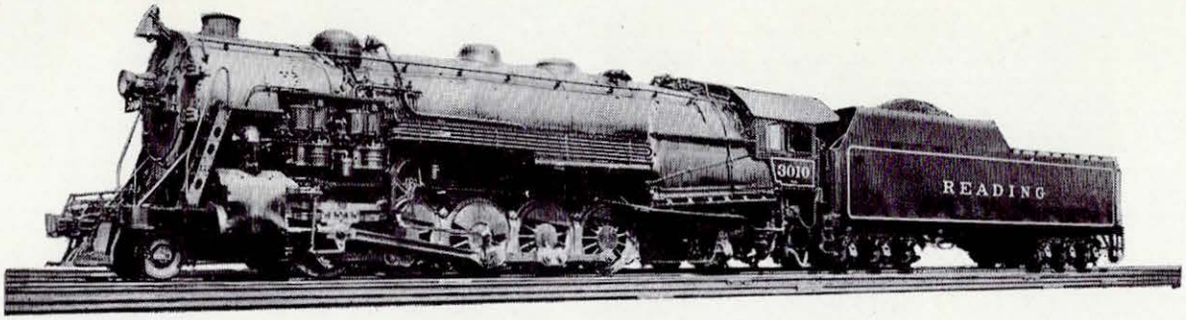
Pamphlets

Matthias W. Baldwin, (1795-1866) Locomotive Pioneer!, by Ralph Kelly. 32 pages, illustrations. Text of an address delivered at a dinner of the Newcomen Society of England in New York on December 5, at which Mr. Kelly was the guest of honor. Printed at the Princeton University Press, Princeton, N. J.

Reviews the career of Matthias W. Baldwin as a builder of locomotives. His relationship to his family and the community are also discussed briefly.

Preliminary Abstract of Railway Statistics (Steam Railways, Railway Express Agency, and the Pullman Company) for the Year Ended December 31, 1945, prepared by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. 42 pages. For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

This publication is intended primarily to make available as promptly as possible certain statistics not obtainable from the monthly or quarterly reports of carriers. It includes statistics covering the Class I railways as a group and as individual carriers. Figures showing operating revenues assignable to, and operating expenses assigned and apportioned to, freight service and passenger and allied services, are also included.



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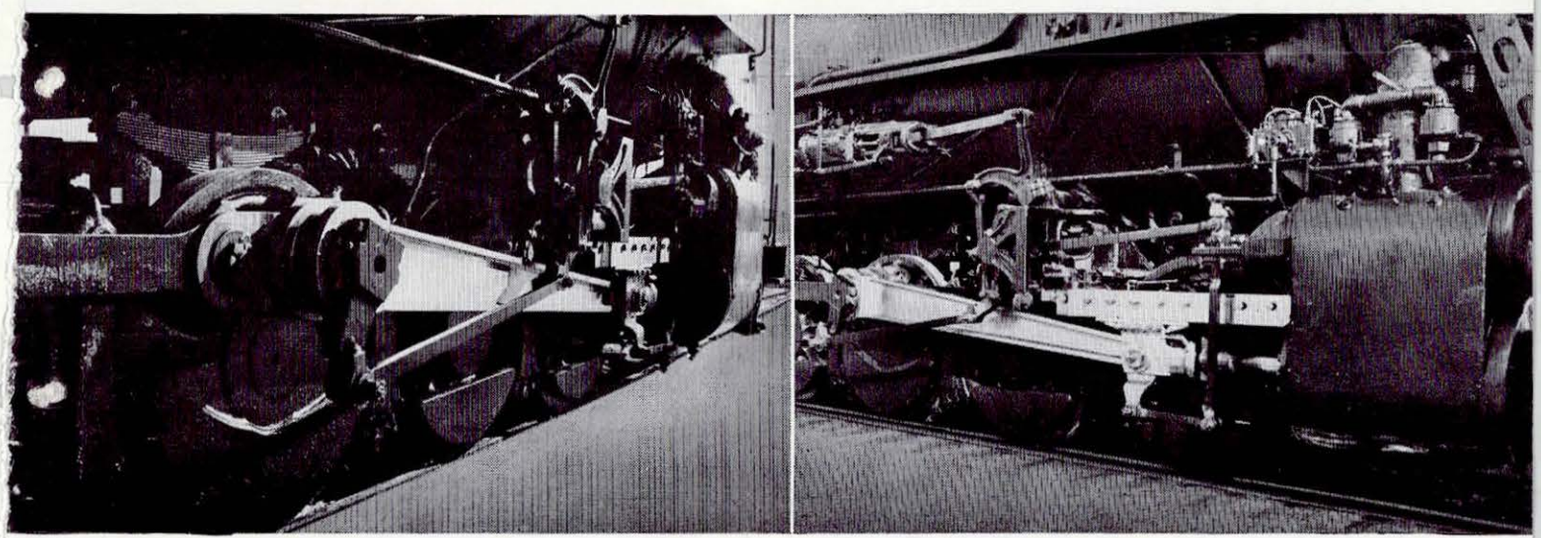

Close-up showing detail of Manganese-Vanadium steel forgings installed on the Reading K1 Class 2-10-2 locomotives.

A forward-looking program of modernization, placed in operation by the Reading Company during the years of war-time building restrictions, included the rehabilitation of twenty-one K1 Class 2-10-2 locomotives. Higher strength-to-weight ratio was obtained by the use of Manganese-Vanadium steel forgings for such vital moving parts as main driving axles, piston heads, crossheads, main rods and main crankpins.

The impressive reduction in dynamic augment, or rail impact, shown in the accompanying table, is one of the outstanding advantages gained by the use of normalized and tempered, high strength Manganese-Vanadium steel for revolving and reciprocating locomotive parts.

M.P.H.	*Dynamic Rail Load Before Changes*	*Dynamic Rail Load After Changes*
30	11,000 lbs.	4,060 lbs.
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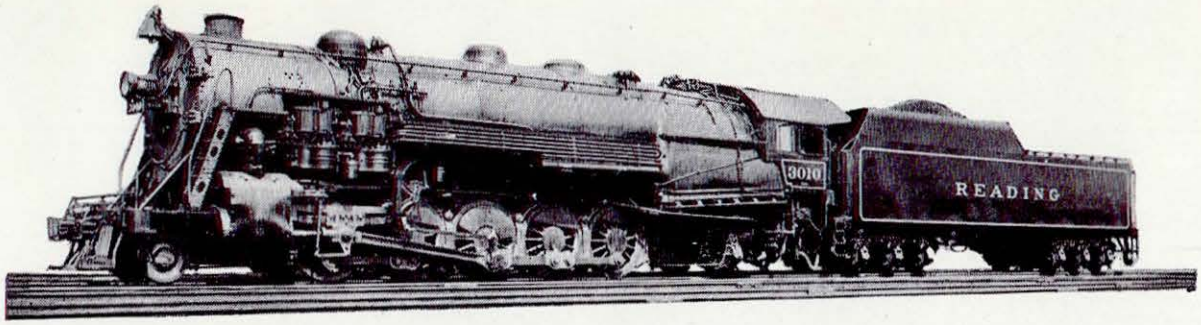

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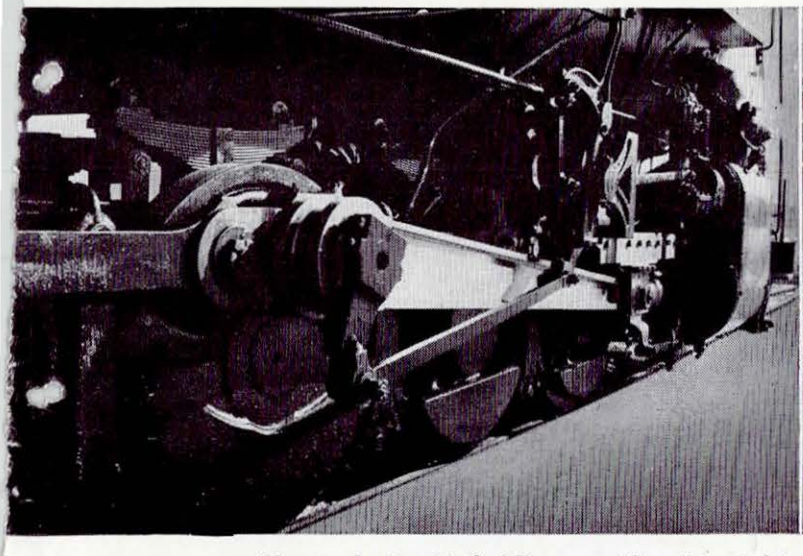

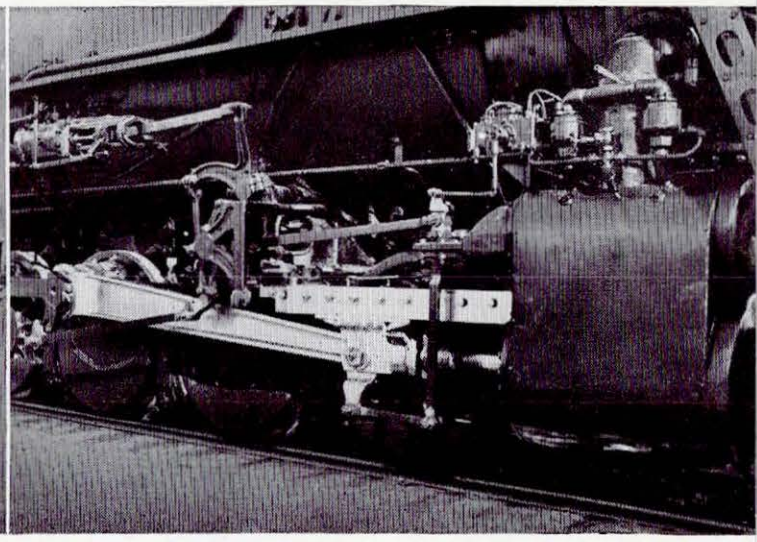

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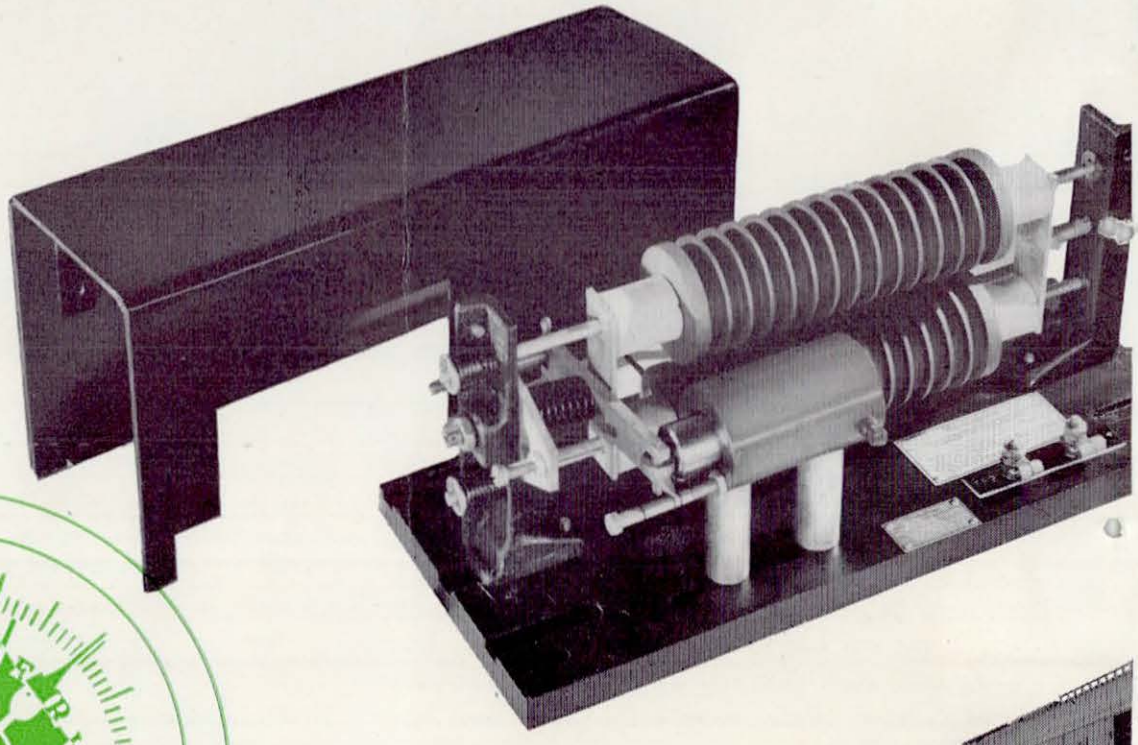

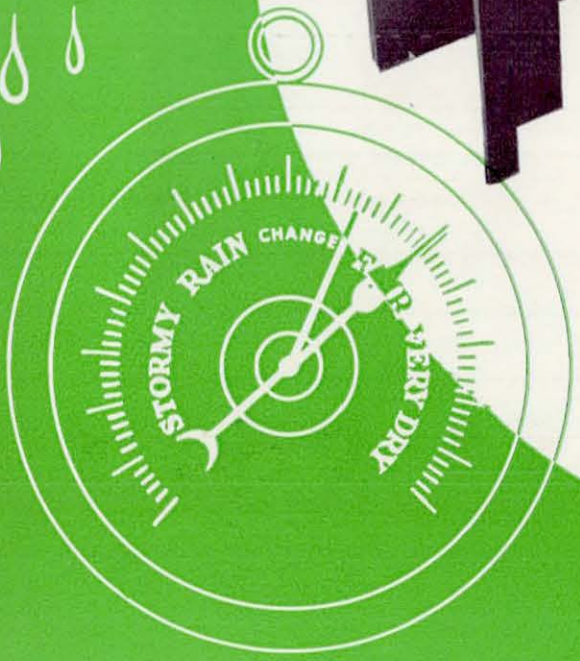

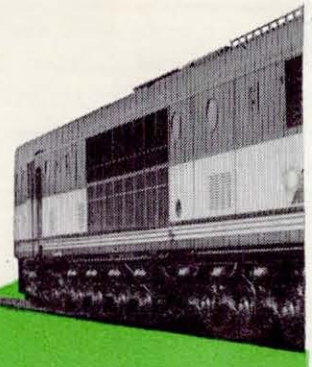

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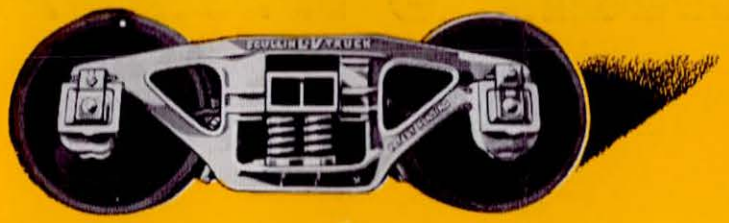

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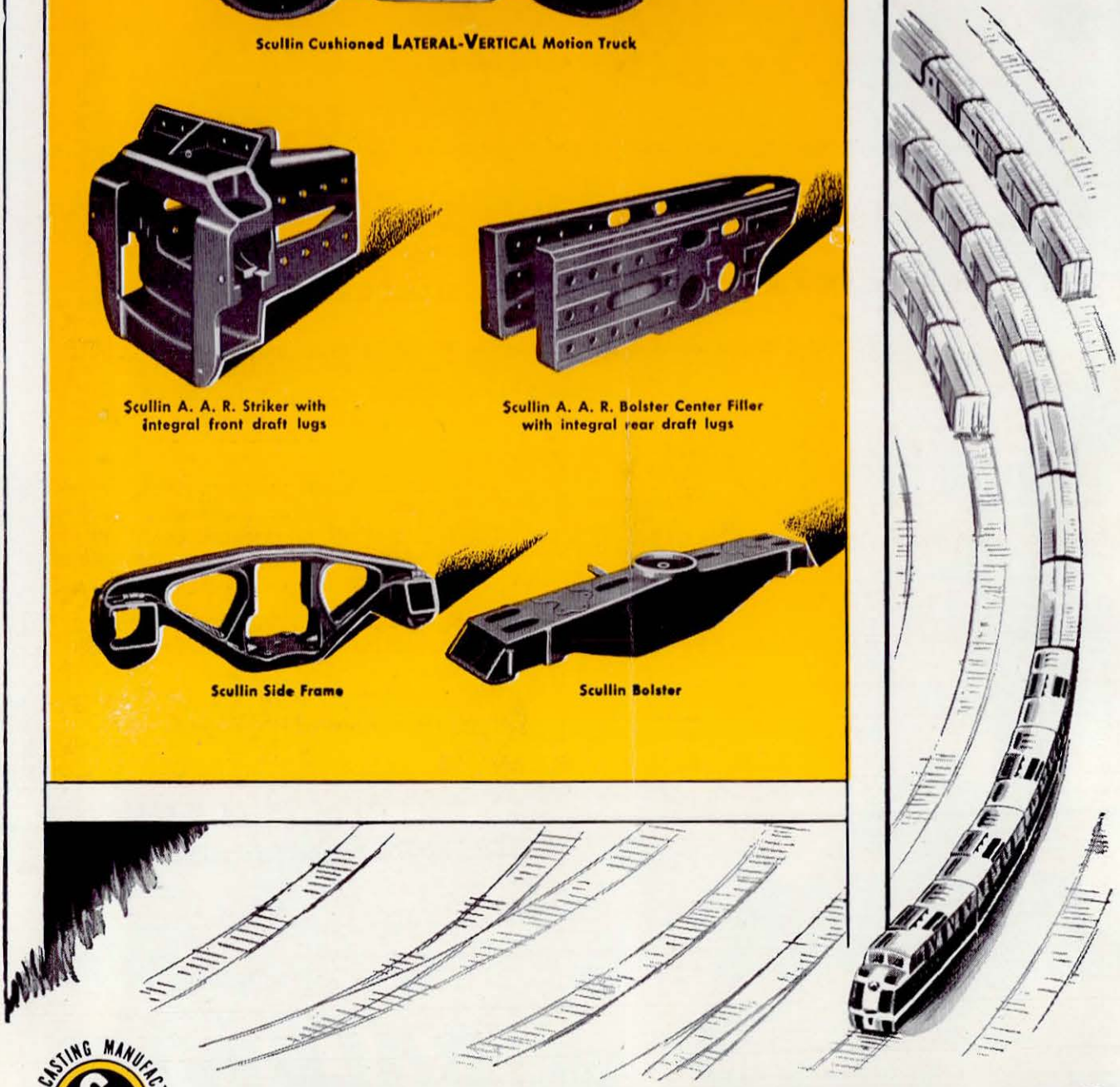

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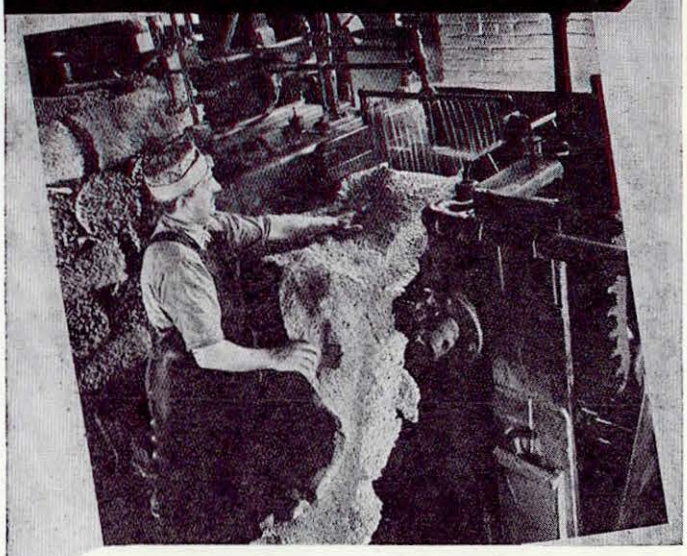

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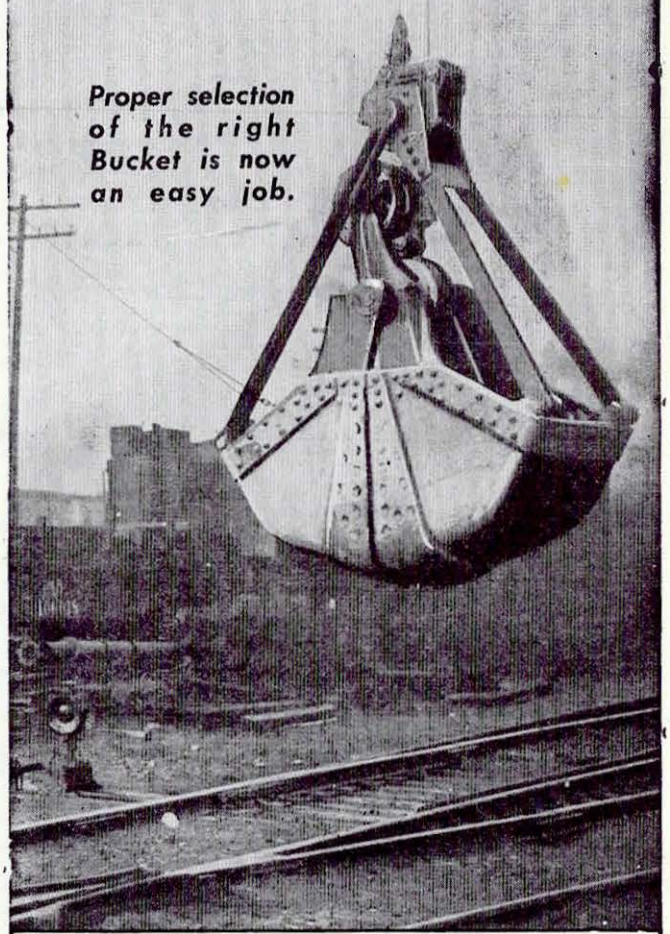

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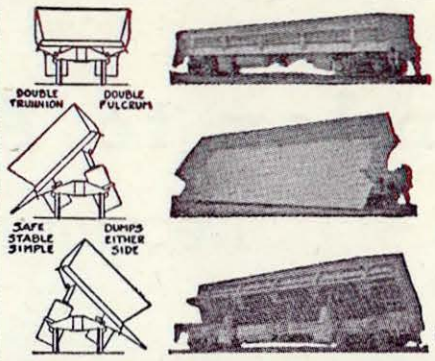

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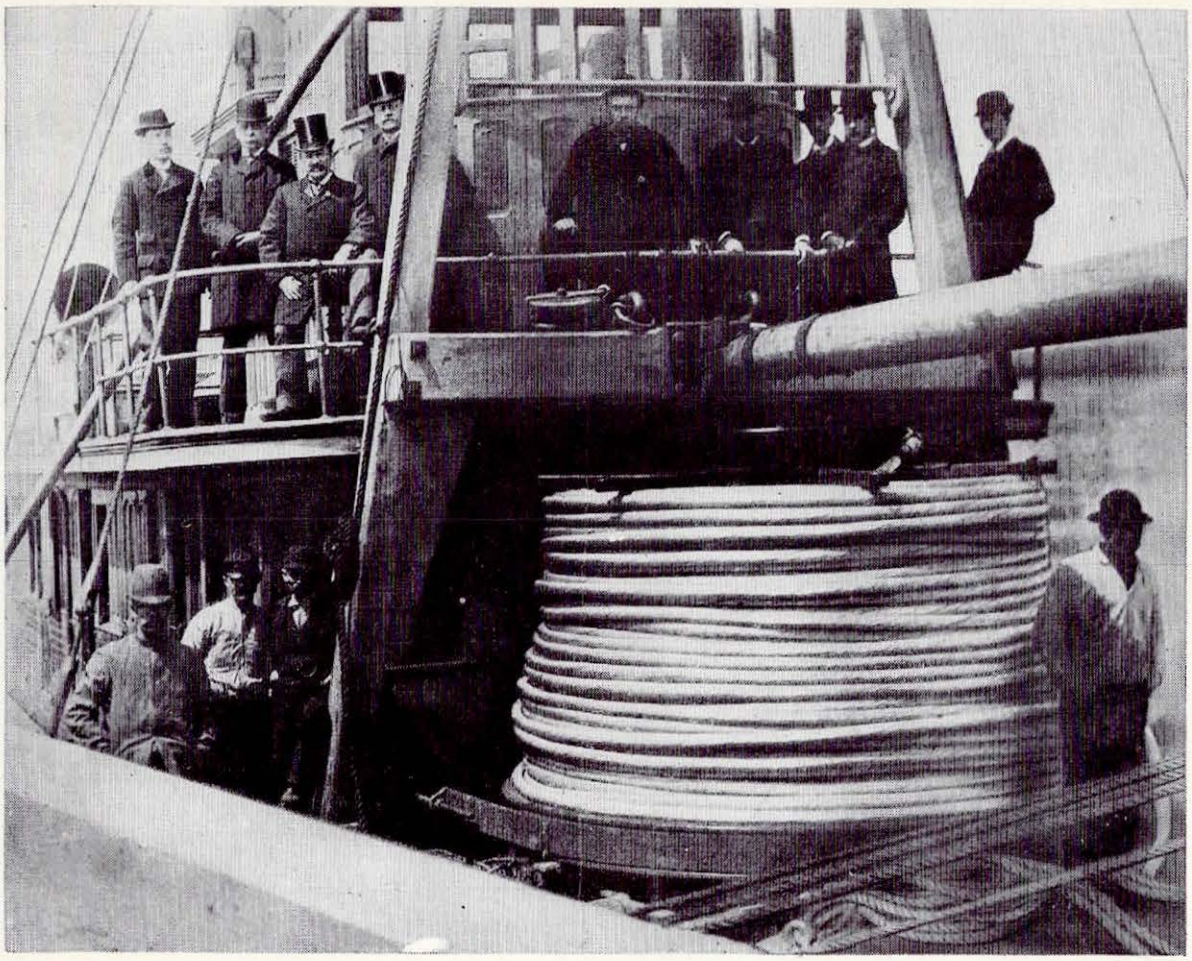

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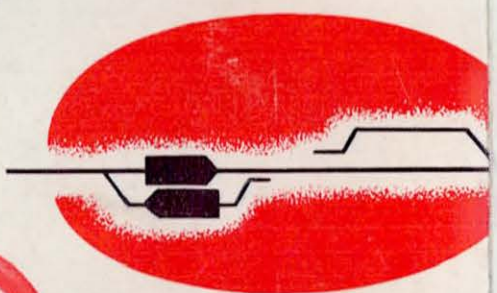

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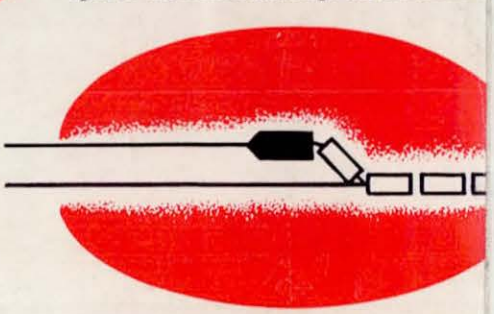

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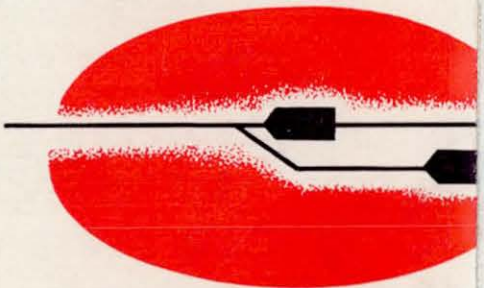

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